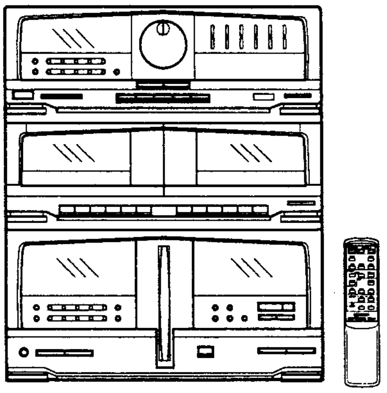
SERVICE MANUAL

FISHER

TAD-993

(XE)

Compact Disc Audio Component System



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PRODUCT CODE No.
129 429 02 (XE)

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This Service manual is consist of "TAD-993", "REM-993".

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REFERENCE No. SM580296

›ECIFICATIONS

ıplifier section

ıtinuous minimum sine wave RMS power output per channel 3 ohms from 40 Hz to 20 kHz with no more than 0.9% total

monic distortion	50 Watts
ıphic equalizer control .	± 6 db (100Hz, 300Hz, 1kHz, 3kHz, 12kHz)
namic bass	+8 db (100Hz)
·ut sensitivity and mpedance	PHONO : 3.5mV / 50k ohms VIDEO : 300 mV / 50k ohms
tputs	SPEAKERS : 8 ohms PHONES : 8 - 32 ohms

ner section

ᴍ)

ıquency range	87.5 - 108.0 MHz(50kHz steps)
able sensitivity	14.7 dBf

ᴍ)

ıquency range	522 - 1,611 kHz (9kHz steps)
nsitivity	500 μV/m

ıssette deck section

ıck system	4-track, 2-channel stereo
ıquency response	60 - 14,000 Hz (Chrome tape) 60 - 13,000 Hz (Normal tape)
ȷnal to noise ratio	60 dB (with Dolby B NR ON)
ɔw and flutter	0.15 % (WRMS)
st forward / ɘwind time(approx.)	DECK 1 : 110 sec. (C-60) DECK 2 : 150 sec. (C-60)

CD changer section

Type	24-disc Bi-Directional Radial Transport
Channels	2-channel stereo
Sampling frequency	44.1 kHz
Pickup	Optical 3-beam semiconductor laser
Frequency response	20 - 20,000 Hz
Wow and flutter	Below measurable limits

General

Power requirements	AC: 230 V, 50 Hz
Dimensions(approx.)	14.2"(W)×16.7"(H)×16.1"(D)
Weight(approx.)	43 lbs.

REM-993 WIRELESS REMOTE CONTROLLER

Power requirements	3VDC - Two "AA" batteries
Dimensions(approx.)	1.5"(W)×6.6"(H)×0.6"(D)
Weight(approx.)	1.7 oz. (without batteries)

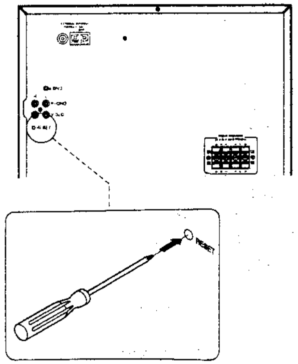
PORTANT INFORMATION

ıcause its products are subject to continuous improvement, FISHER reserves the right to modify product designs and spec- ;ations without notice and without incurring any obligation.

PERATING THE RESET SWITCH

his unit is provided with a reset switch on the rear panel. The reset switch serves to initialize the microprocessor in the unit ·hich controls the CD, TUNER, TAPE DECK and AMPLIFIER section. If the unit is to be serviced or key input is not acknowl- dged even when the CD, TUNER, TAPE DECK and etc. operation buttons are pressed, press the RESET switch and initial- :e the microprocessor following the step below.

1). Disconnect the AC power cord from the power outlet.
2). Keep the RESET switch depressed for 60 seconds.
    (The backed up electrolytic capacitor is discharged by keeping the RESET switch depress.)
3). Reconnect the AC power cord to the power outlet.
4). Press the CD, TUNER, TAPE DECK and etc. operations, and check their operation.



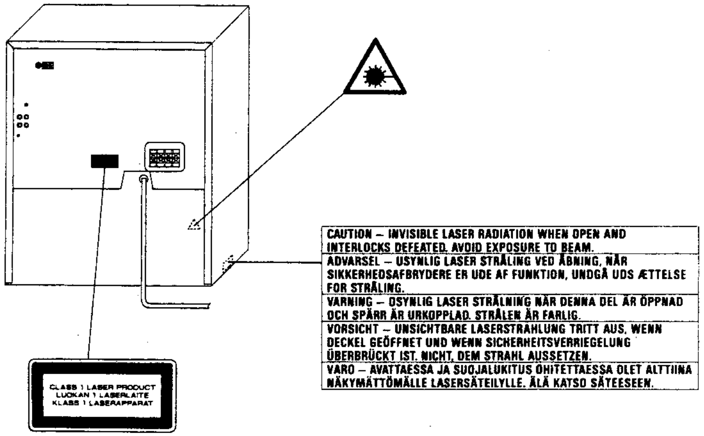
LASER BEAM SAFETY PRECAUTIONS (CD)

Do not look directly at the laser beam coming from the pick-up or allow it to strike against your fingers, skin, etc.
Do not apply power if there is a broken part in the laser output section of the pick-up.

Structural Safety Interlock

This model has a disc chuck lever and top lid. This disc chuck lever and top lid prevent to expose the laser beam for users.

INVISIBLE LASER RADIATION EXPOSURE TO BEAM IS DANGEROUS CLASS 1 LASER PRODUCT
OUTPUT POWER : 0.6 mW MAX WAVELENGTH : 790 nm



CAUTION – INVISIBLE LASER RADIATION WHEN OPEN AND INTERLOCKS DEFEATED. AVOID EXPOSURE TO BEAM.
ADVARSEL – USYNLIG LASER STRÅLING VED ÅBNING, NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION, UNDGÅ UDSÆTTELSE FOR STRÅLING.
VARNING – OSYNLIG LASER STRÅLNING NÄR DENNA DEL ÄR ÖPPNAD OCH SPÄRR ÄR URKOPPLAD. STRÅLEN ÄR FARLIG.
VORSICHT – UNSICHTBARE LASERSTRAHLUNG TRITT AUS, WENN DECKEL GEÖFFNET UND WENN SICHERHEITSVERRIEGELUNG ÜBERBRÜCKT IST. NICHT DEM STRAHL AUSSETZEN.
VARO – AVATTAESSA JA SUOJALUKITUS OHITETTAESSA OLET ALTTIINA NÄKYMÄTTÖMÄLLE LASERSÄTEILYLLE. ÄLÄ KATSO SÄTEESEEN.

CLASS 1 LASER PRODUCT
LUOKAN 1 LASERLAITE
KLASS 1 LASERAPPARAT

HANDLING THE PICK-UP (CD)

1. Shipping and storage cautions

a. The pick-up must be stored in a conductive bag until immediately prior to its use.
b. Do not drop it or subject it to impacts.

2. Repair cautions

a. When handling the pick-up, be careful not to give it undue force or shock by your hands. Otherwise the pick-up may malfunction or the PCB may be cracked.
b. The pick-up which has been minutely adjusted before shipment as one part. Never touch and move the adjusting points and setscrews of the pick-up unless otherwise described in the item of adjustment to avoid damage.
c. A strong magnet is used in the pick-up. Do not bring a magnet or other magnetized object near to it.
d. Cleaning the lens
    - If dust gets on the lens, clean it away by using an air brush such as used for a camera lens.
    - The lens is held in place by a spring. If the center of the lens is dirty, carefully clean it using cotton swab moistened with isopropylalcohol. Since special coating is made on the surface of the lens which is made of plastics, do not use other kind of alcohol and cleaning fluid to prevent damage to the lens. Also, be careful not to bend the lens spring when cleaning.

BEFORE REPAIRING THE CD CHANGER

1. Preparations

a. Many ICs, LSI and the Pick-up (laser diode) are used in the compact disc player, These components are sensitive to static electricity, and might be damaged by static electricity or high voltage, so particular care should be taken regarding this point.
b. Many precision components and the lens are used in the pick-up. Never attempt to make repairs, or to store parts, where the temperature or humidity is high, where magnetism is strong, or where there is much dust.

2. Notes regarding repairs

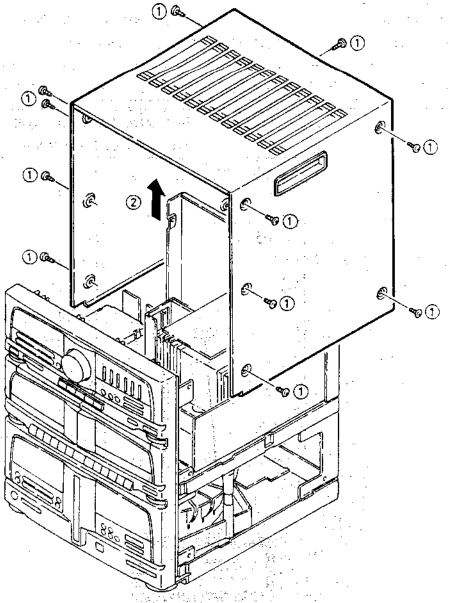
a. Be sure to first disconnect the power plug before attempting to replace any component.
b. All tools, instruments, etc., used for measuring must be grounded. Grounding can be accomplished by using a conductive metal sheet on the work bench.
c. To prevent AV leakage of the soldering iron, ground its metal part.
d. Repair personnel must be grounded.

isassembly and Reassembly Instructions

- Remove all compact discs (CDs).
- Unplug the AC power cord from the wall outlet (AC outlet).
- If lead wires are disconnected, be sure to reconnect them afterward as they were.

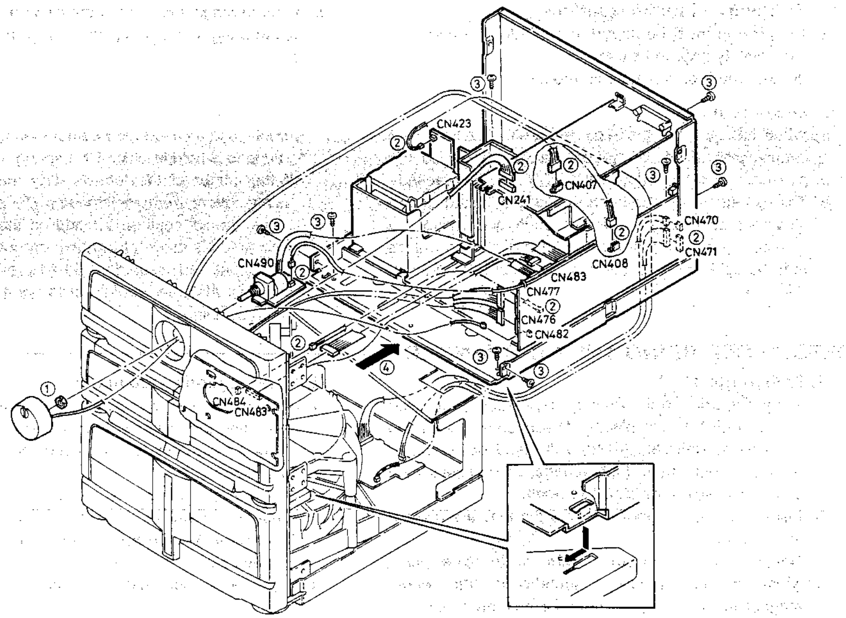
1. Removing the Cabinet

1) Remove the 11 screws ① securing both sides of the cabinet.
2) Pull outward slightly on both sides of the cabinet and lift it off in the direction indicated by the arrow ②.


①
①
①
①
①
①
②
①
①
①
①
①

2. Removing the Amplifier Block

1) Remove the knob ①.
2) Unplug the connectors ② from the CD block, etc.
3) Remove the eight screws ③.
4) Lift out the amplifier block in the direction indicated by the arrow ④.


③
CN423
③
②
②
②
CN241
CN407
③
③
③
③
CN470
②
CN471
CN490
②
CN408
CN483
CN477
②
CN476
CN482
②
④
③
③
①
CN484
CN483

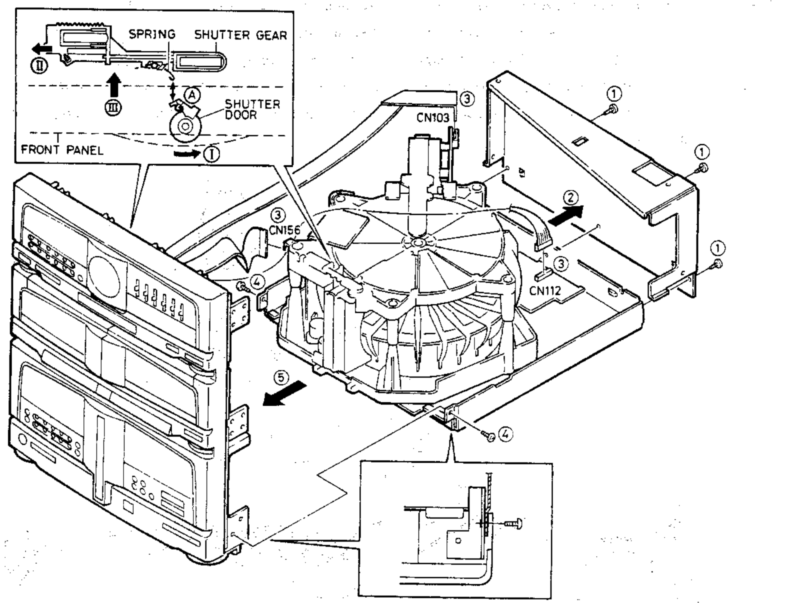
---

3. Removing the CD Block

1) Remove the three screws ① securing the cabinet bottom and CD rear panel.
2) Remove the CD rear panel in the direction indicated by the arrow ②.
3) Unplug the connectors ③ from the front panel.
4) Remove the two screws ④ securing the cabinet bottom and front panel.
5) Remove the front panel in the direction indicated by the arrow ⑤.

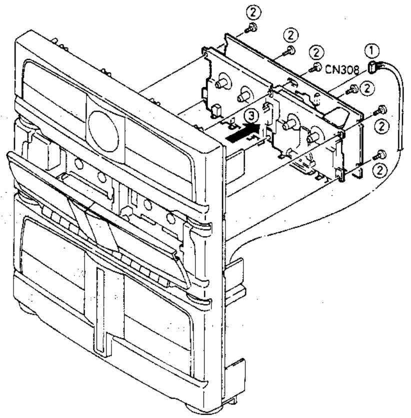
- **Shutter setting**

With the shutter door closed (I), move the shutter gear in the direction indicated by arrow (II) and push the front panel in the direction indicated by arrow (III). This will cause the spring and shutter door to engage at point Ⓐ.


SPRING
SHUTTER GEAR
Ⅱ
Ⅲ
Ⓐ
SHUTTER DOOR
FRONT PANEL
Ⅰ
③
CN103
①
①
②
①
③
CN156
④
③
CN112
⑤
④

4. Removing the Cassette Deck Mechanism

1) Unplug the connector ① from the Dolby switch board.
2) Remove the six screws ②.
3) Lift out the deck mechanism in the direction indicated by the arrow ③.

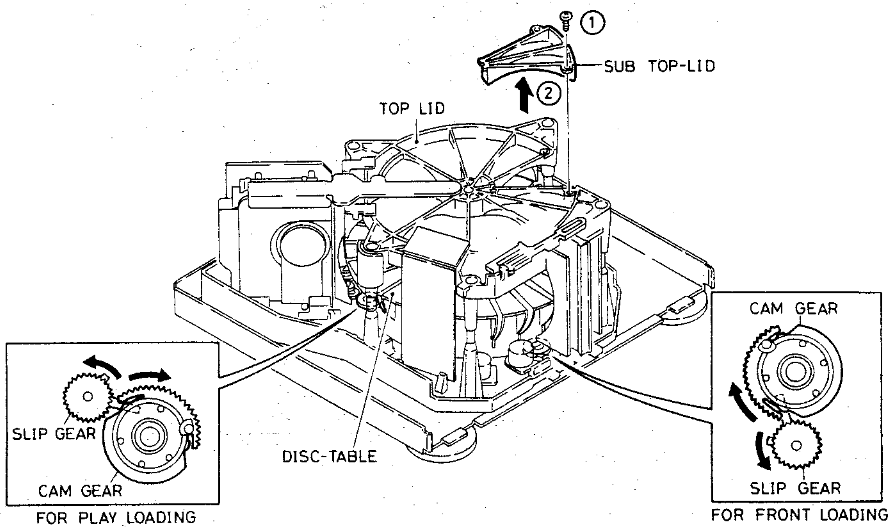

②
②
②
①
CN308
②
③
②
②
②

If the CDs cannot be removed]

5. Procedure for removing CDs from the disc table (turntable)

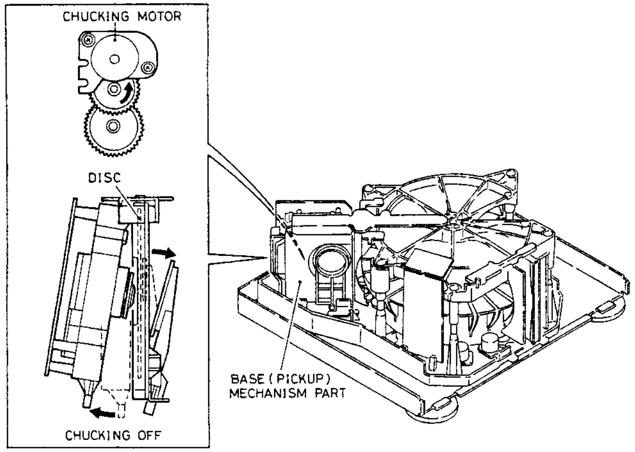
1) Remove the screw ① holding the sub-top lid in place.
2) Remove the sub-top lid in the direction indicated by arrow ②.
3) CDs can now be removed through the space created by removing the sub-top lid.
4) If the disc table will not turn, perform steps (1) and (2) of the gear setting procedure described below. This will allow the disc-table to be moved.
   (1) As shown in the detail drawing at right, turn the cam gear for front loading in the direction indicated by the arrow so that it and the slip gear move to a position where they do not engage each other.
   (2) As shown in the detail drawing at left, turn the cam gear for play loading in the direction indicated by the arrow so that it and the slip gear move to a position where they do not engage each other.

   To perform gear setting steps (1) and (2), either move the motor drive systems by hand or apply DC 3 V to the appropriate motor terminals to activate them. When applying DC 3 V to operate the motors, make sure to disconnect the motor lead wires before applying voltage. The motor drive circuitry could be damaged if the motor lead wires are not disconnected first.



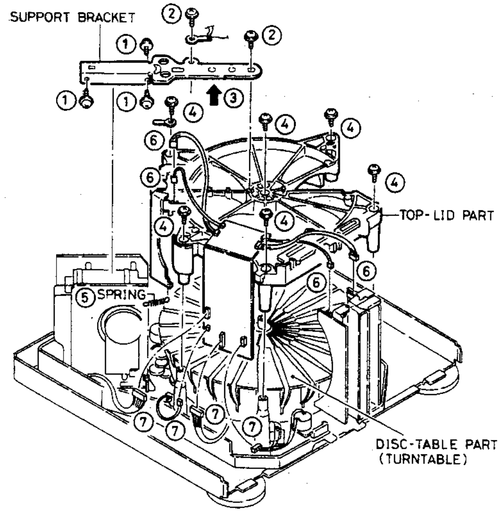
6. Procedure for removing CDs from the base mechanism

1) As shown in the diagram, unchuck CDs that are chucked by turning the chucking gear in the direction indicated by the arrow.
   - To turn the chucking gear in step 1), either move the chucking motor drive system by hand or apply DC 3 V to the motor terminals to activate it. When applying DC 3 V to operate the motor, make sure to disconnect the motor lead wires before applying voltage. The motor drive circuitry could be damaged if the motor lead wires are not disconnected first.
2) Once the CD is unchucked, move it from inside the base mechanism to the disc-table.
   - To move the CD in step 2), either move the play loading motor drive system by hand or apply DC 3 V to the motor terminals to activate it. When applying DC 3V to operate the motor, make sure to disconnect the motor lead wires before applying voltage. The motor drive circuitry could be damaged if the motor lead wires are not disconnected first.
3) CDs in the disc table can now be removed using the method described in section 1.



7. Removing the top lid from the mechanism

1) Remove the three screws ① securing the base mechanism to the support bracket.
2) Remove the two screws ② holding the support bracket in place.
3) Remove the support bracket in the direction indicated by arrow ③.
4) Remove the six screws ④ holding the top lid in place.
5) Remove spring ⑤.
6) Unplug the four connectors ⑥ from the top lid.
7) Unplug the four connectors ⑦ from the mechanism chassis.
8) Remove the top lid.



SASSEMBLY (CD)

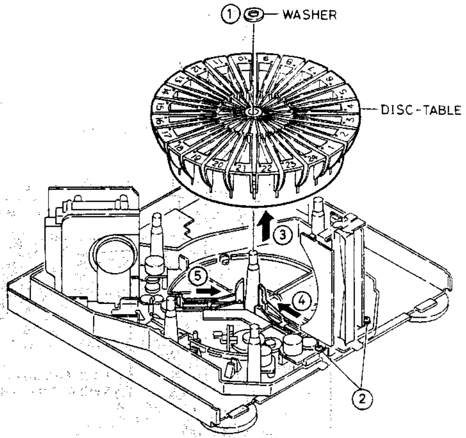
Removing the disc-table

1) Remove washer ①.
2) Remove the two screws ② holding the sensor assy in place.
3) Remove the disc-table in the direction indicated by arrow ③.

   When replacing the disc table, perform gear setting steps (1) and (2) below to facilitate easy remounting.

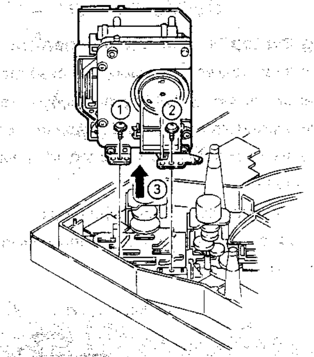
   (1) Turn the cam gear for front loading to move the front loading slide as far as it will go in the direction of arrow ④.

   (2) Turn the cam gear for play loading to move the play loading slide as far as it will go in the direction of arrow ⑤.

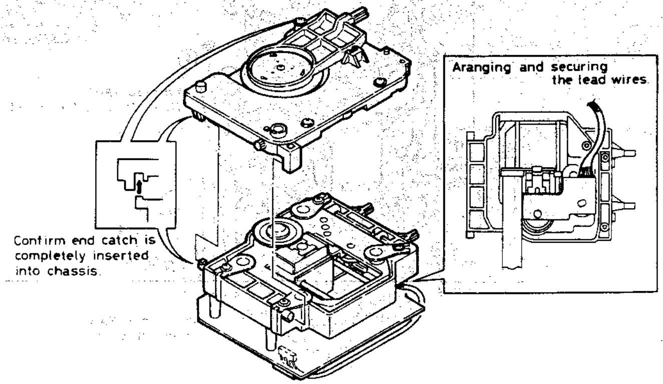

① WASHER
DISC-TABLE
③
⑤
④
②

9. Removing the base (pickup) mechanism

1) Remove the screw ① holding the base mechanism in place.
2) Remove the screw ② holding the base mechanism in place.
3) Remove the base mechanism in the direction indicated by arrow ③.



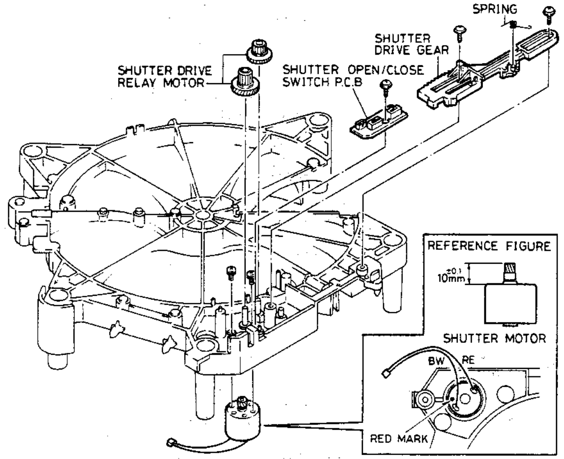
10. Removing the chucking portion of the base (pickup) mechanism


Confirm end catch is completely inserted into chassis.
Aranging and securing the lead wires

ADJUSTMENT MECHANISM (CD)

Procedure for Mounting Main Mechanism Parts

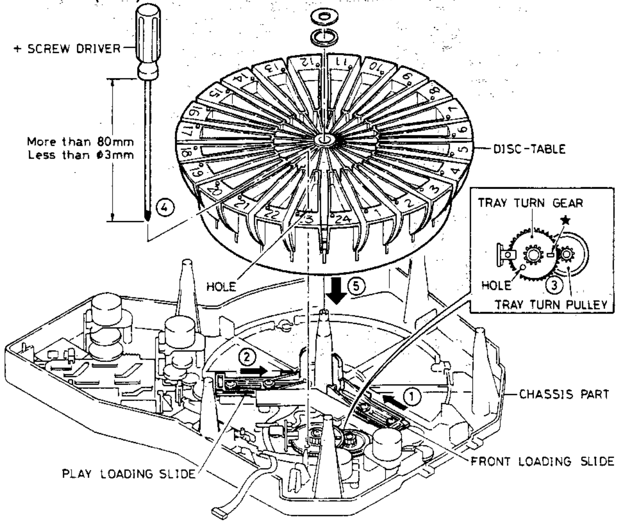
1. Top lid


SPRING
SHUTTER DRIVE GEAR
SHUTTER DRIVE RELAY MOTOR
SHUTTER OPEN/CLOSE SWITCH P.C.B
REFERENCE FIGURE
10mm
SHUTTER MOTOR
BW
RE
RED MARK

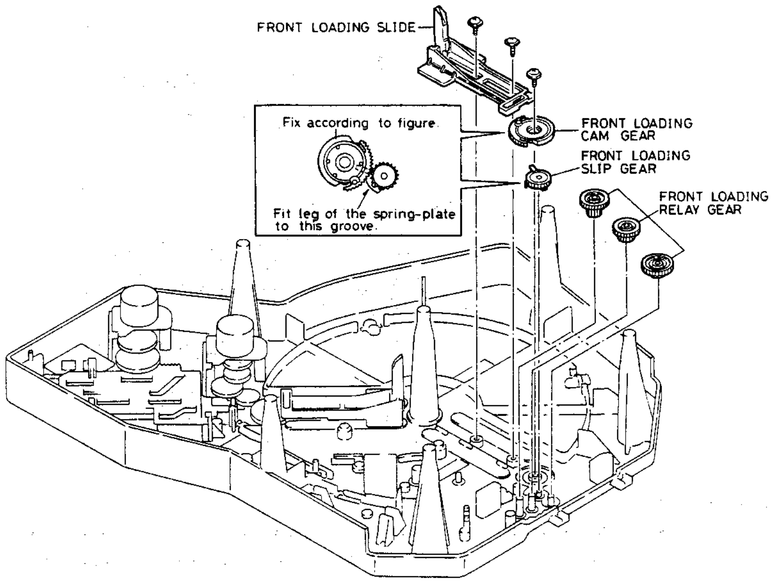
2. Disctable (turntable)

1) Turn the cam gear for front loading to move the front loading slide as far as it will go in the direction of arrow ①.
2) Turn the cam gear for play loading to move the play loading slide as far as it will go in the direction of arrow ②.
3) As shown in detail drawing ③, align the oval shaped hole in the tray turn gear (indicated by *) with the center of the tray turn pulley.
4) Line up hole number 23 on the disc table with the round hole in the tray turn gear, after setting it as described in step 3). Then fit the disc table over the chassis shaft (boss) in the direction indicated by arrow ⑤.

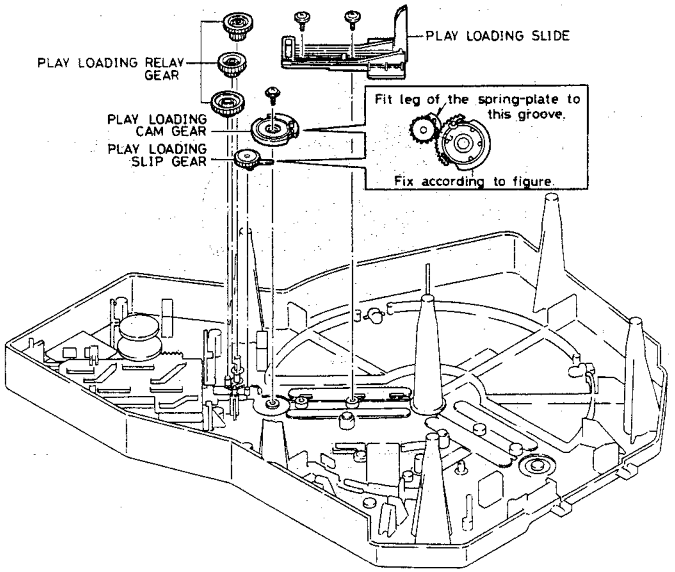
When aligning hole number 23 on the disc table with the hole in the tray turn gear, a certain amount of skill is required. The task can be made easier by inserting a Phillips screwdriver or the like through the two holes and then fitting the disc table over the chassis shaft (boss).


+ SCREW DRIVER
More than 80mm
Less than ϕ3mm
④
DISC-TABLE
TRAY TURN GEAR
HOLE
③
TRAY TURN PULLEY
HOLE
⑤
②
①
CHASSIS PART
FRONT LOADING SLIDE
PLAY LOADING SLIDE

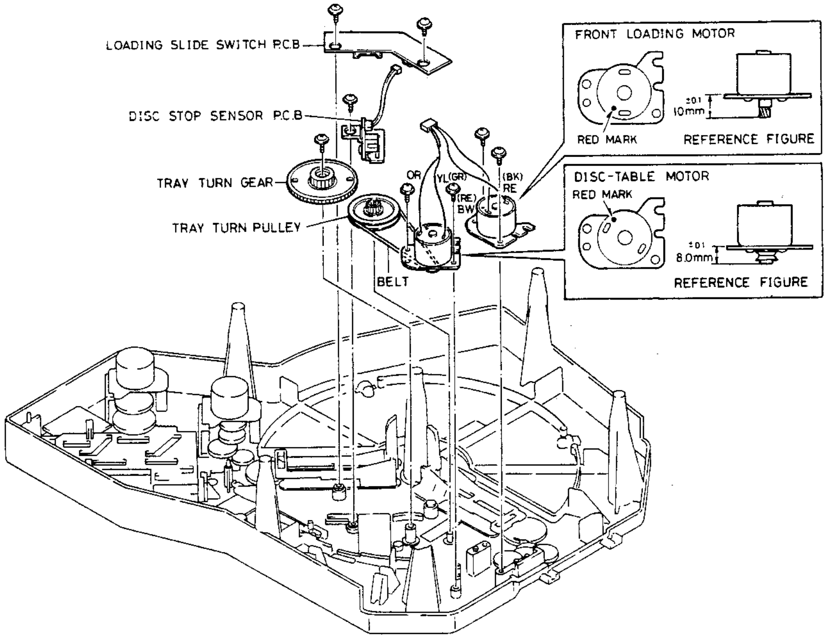
3. Front loading portion


FRONT LOADING SLIDE
Fix according to figure.
Fit leg of the spring-plate to this groove.
FRONT LOADING CAM GEAR
FRONT LOADING SLIP GEAR
FRONT LOADING RELAY GEAR

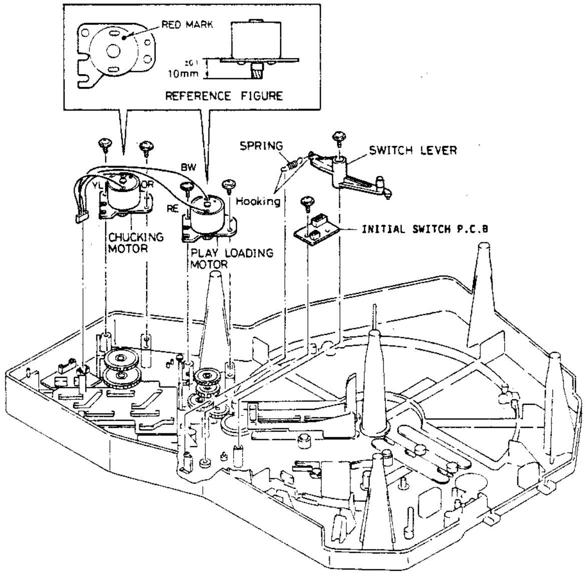
4. Play loading portion


PLAY LOADING SLIDE
PLAY LOADING RELAY GEAR
PLAY LOADING CAM GEAR
PLAY LOADING SLIP GEAR
Fit leg of the spring-plate to this groove.
Fix according to figure.

5. Front loading and disctable motor


LOADING SLIDE SWITCH P.C.B
DISC STOP SENSOR P.C.B
TRAY TURN GEAR
TRAY TURN PULLEY
BELT
OR
YL(GR)
(BK)
RE
(RE)
BW
FRONT LOADING MOTOR
±0.1
10mm
RED MARK
REFERENCE FIGURE
DISC-TABLE MOTOR
RED MARK
±0.1
8.0mm
REFERENCE FIGURE

6. Play loading and chucking motor


RED MARK
±0.1
10mm
REFERENCE FIGURE
SPRING
SWITCH LEVER
BW
YL
OR
RE
Hooking
INITIAL SWITCH P.C.B
CHUCKING MOTOR
PLAY LOADING MOTOR

DJUSTMENT MECHANISM (CD)

7. Replacing the pickup

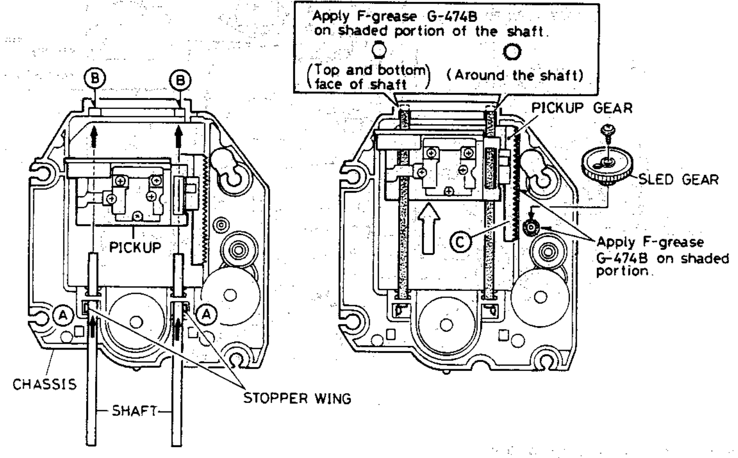
Shaft mounting/removal

1) Insert the shaft from section Ⓐ of the front of the chassis, pass it through the pickup and fit it the tip into the groove at section Ⓑ.
2) Push the shaft in further so that its tip stops at section Ⓑ. Then secure it in place using stopper wing Ⓐ.

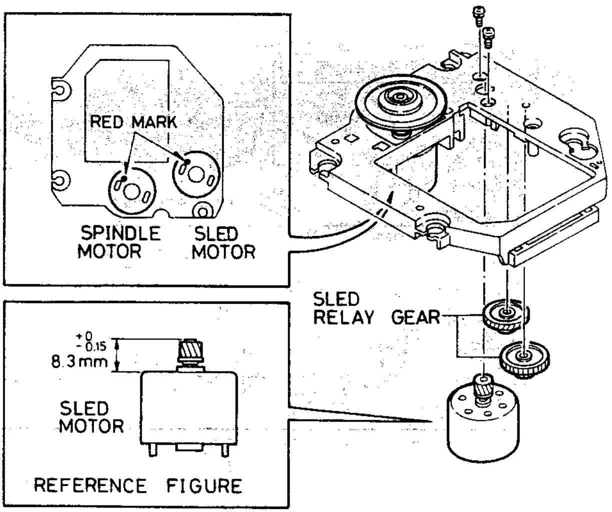
- When mounting or removing the shaft, be careful not to lose stopper wing Ⓐ.

Mounting the sled gear

1) To mount the sled gear, move the pickup as far as it will go in the direction indicated by the arrow.
2) Push slightly on point Ⓒ on the inside of the pickup gear when mounting the sled gear.


Apply F-grease G-474B
on shaded portion of the shaft.
(Top and bottom face of shaft)
(Around the shaft)
Ⓑ
Ⓑ
PICKUP GEAR
SLED GEAR
PICKUP
Ⓒ
Apply F-grease G-474B on shaded portion.
Ⓐ
Ⓐ
CHASSIS
SHAFT
STOPPER WING

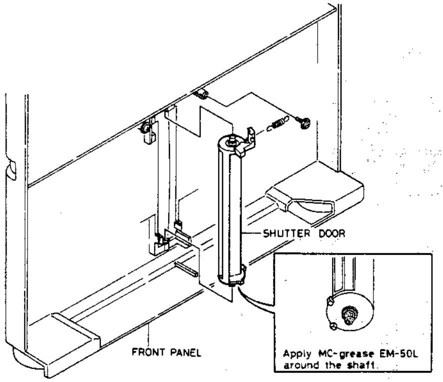
8. Sled and spindle motor of base mechanism


RED MARK
SPINDLE MOTOR
SLED MOTOR
SLED RELAY GEAR
+0
-0.15
8.3mm
SLED MOTOR
REFERENCE FIGURE

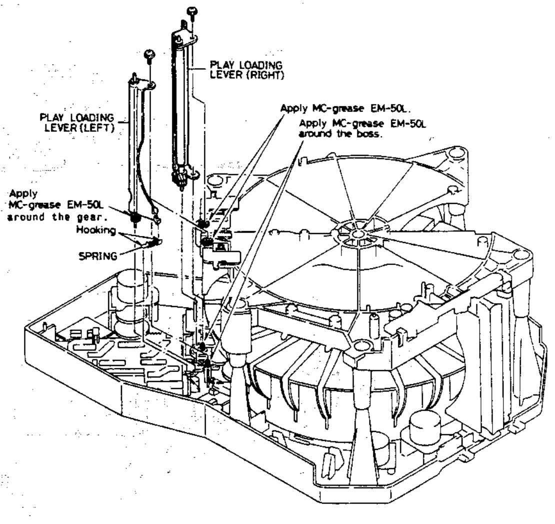
STANDARD MAINTENANCE (CD)

Applying grease and grease point

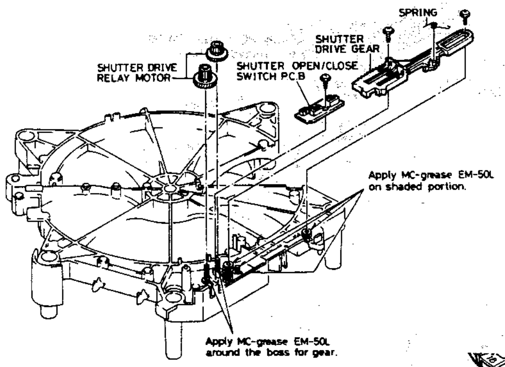
1. Front panel


SHUTTER DOOR
FRONT PANEL
Apply MC-grease EM-50L around the shaft.

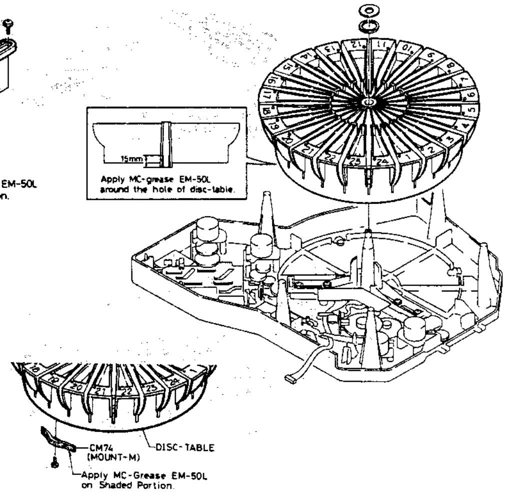
2. Play loading roller


PLAY LOADING LEVER (RIGHT)
PLAY LOADING LEVER (LEFT)
Apply MC-grease EM-50L.
Apply MC-grease EM-50L around the boss.
Apply MC-grease EM-50L around the gear.
Hooking
SPRING

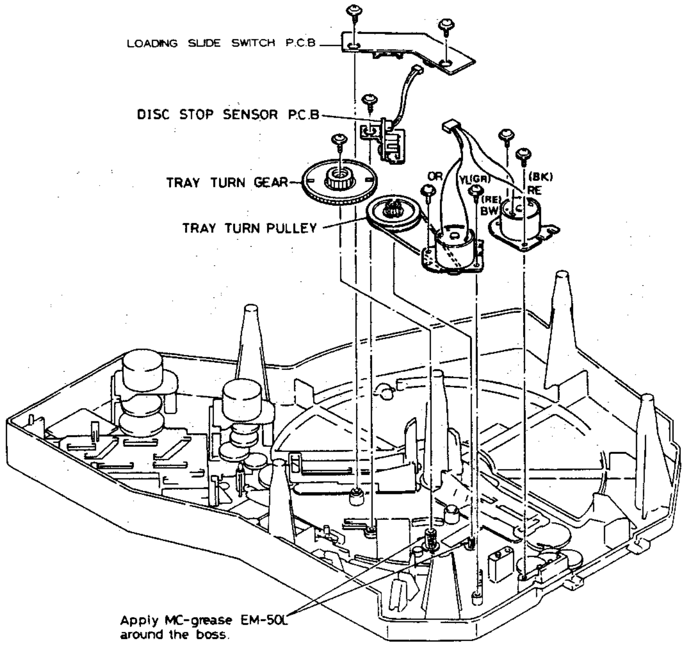
3. Shutter portion


SPRING
SHUTTER DRIVE GEAR
SHUTTER DRIVE RELAY MOTOR
SHUTTER OPEN/CLOSE SWITCH P.C.B
Apply MC-grease EM-50L on shaded portion.
Apply MC-grease EM-50L around the boss for gear.

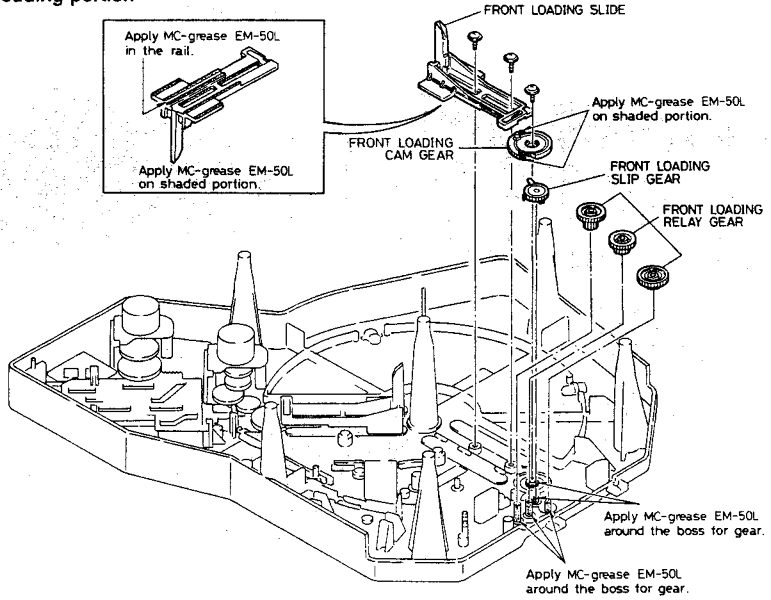
4. Disctable portion


15mm
Apply MC-grease EM-50L around the hole of disc-table.
CM74 (MOUNT-M)
DISC-TABLE
Apply MC-Grease EM-50L on Shaded Portion.

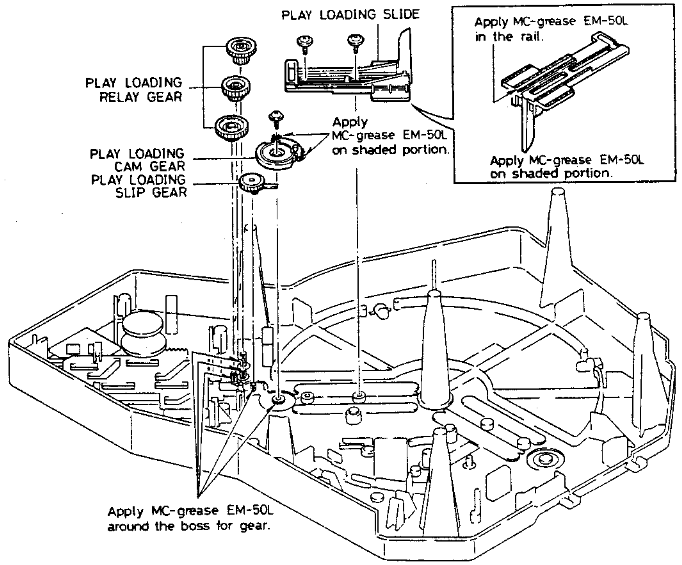
5. Disc driver portion


LOADING SLIDE SWITCH P.C.B
DISC STOP SENSOR P.C.B
TRAY TURN GEAR
TRAY TURN PULLEY
OR
YL(GR)
(BK)
RE
(RE)
BW
Apply MC-grease EM-50L around the boss.

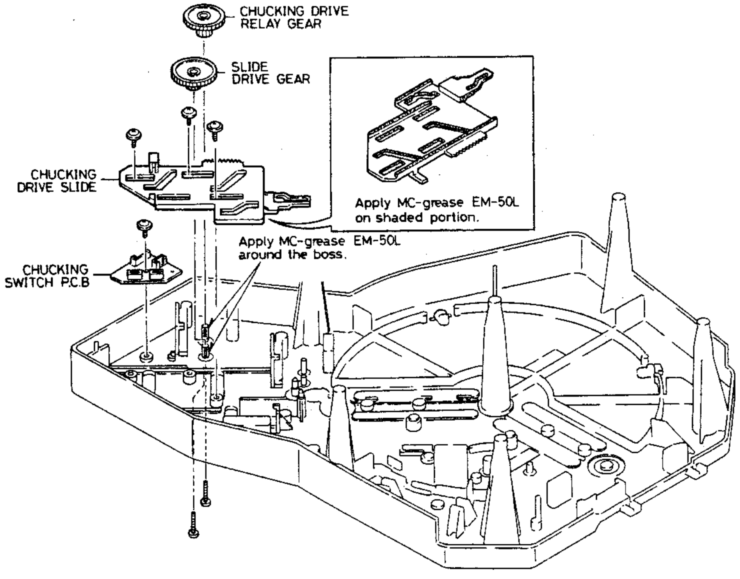
6. Front loading portion


FRONT LOADING SLIDE
Apply MC-grease EM-50L in the rail.
Apply MC-grease EM-50L on shaded portion.
Apply MC-grease EM-50L on shaded portion.
FRONT LOADING CAM GEAR
FRONT LOADING SLIP GEAR
FRONT LOADING RELAY GEAR
Apply MC-grease EM-50L around the boss for gear.
Apply MC-grease EM-50L around the boss for gear.

7. Play loading portion

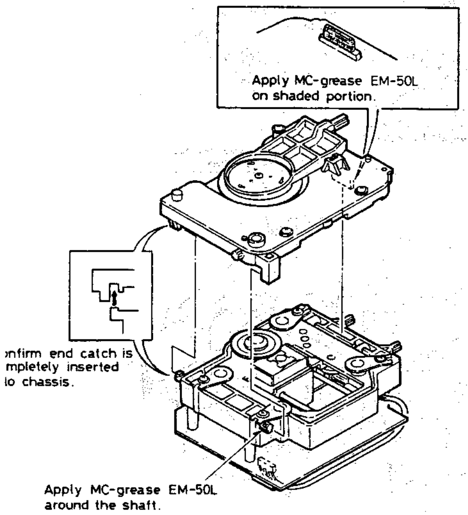

PLAY LOADING SLIDE
Apply MC-grease EM-50L in the rail.
PLAY LOADING RELAY GEAR
Apply MC-grease EM-50L on shaded portion.
PLAY LOADING CAM GEAR
PLAY LOADING SLIP GEAR
Apply MC-grease EM-50L on shaded portion.
Apply MC-grease EM-50L around the boss for gear.

8. Chucking driver portion

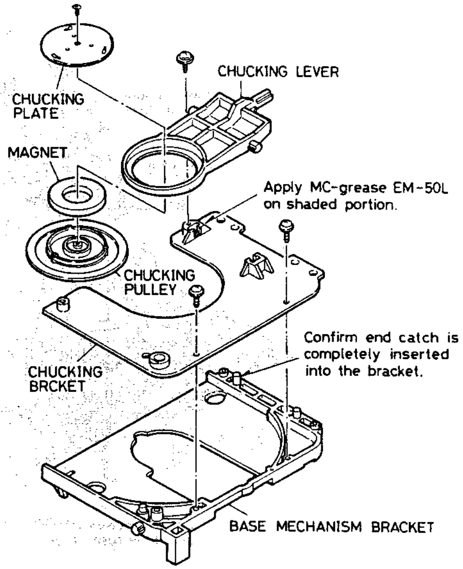

CHUCKING DRIVE RELAY GEAR
SLIDE DRIVE GEAR
CHUCKING DRIVE SLIDE
Apply MC-grease EM-50L on shaded portion.
Apply MC-grease EM-50L around the boss.
CHUCKING SWITCH P.C.B

TANDARD MAINTENANCE (CD)

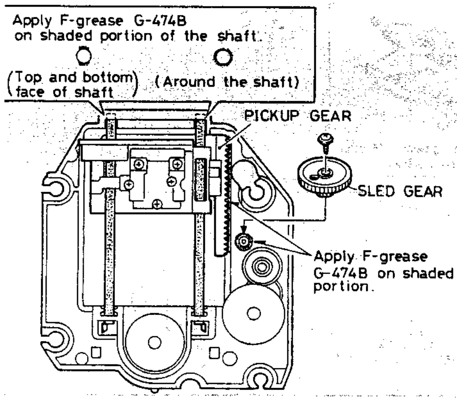
9. Chucking bracket portion


Apply MC-grease EM-50L on shaded portion.
nfirm end catch is
mpletely inserted
o chassis.
Apply MC-grease EM-50L around the shaft.

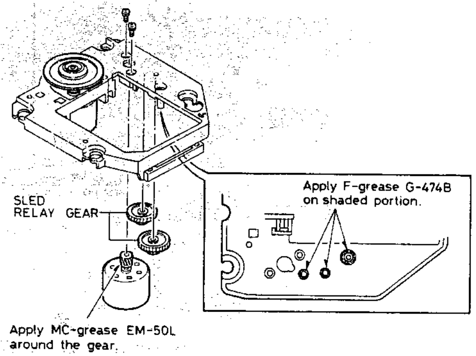
10. Chucking lever portion


CHUCKING LEVER
CHUCKING PLATE
MAGNET
Apply MC-grease EM-50L on shaded portion.
CHUCKING PULLEY
Confirm end catch is completely inserted into the bracket.
CHUCKING BRCKET
BASE MECHANISM BRACKET

11. Sled Driver portion

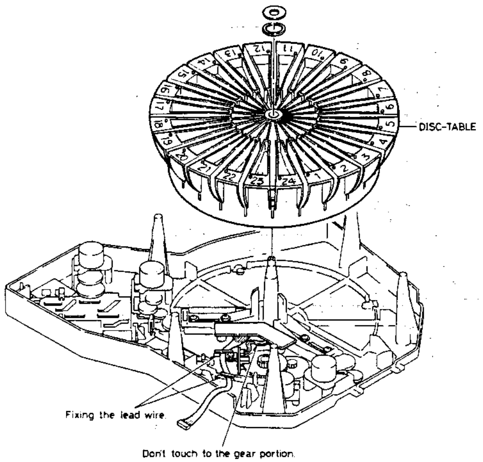

Apply F-grease G-474B on shaded portion of the shaft.
(Top and bottom face of shaft)
(Around the shaft)
PICKUP GEAR
SLED GEAR
Apply F-grease G-474B on shaded portion.

12. Pickup portion

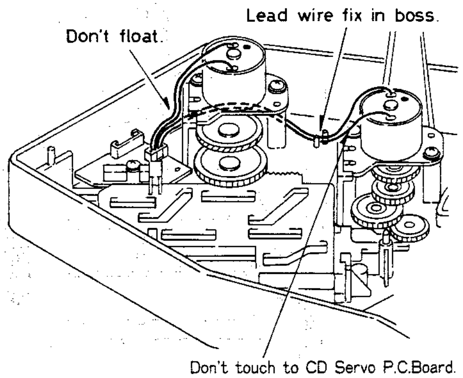

SLED RELAY GEAR
Apply F-grease G-474B on shaded portion.
Apply MC-grease EM-50L around the gear.

LEAD WIRE ATTACHMENT (CD)

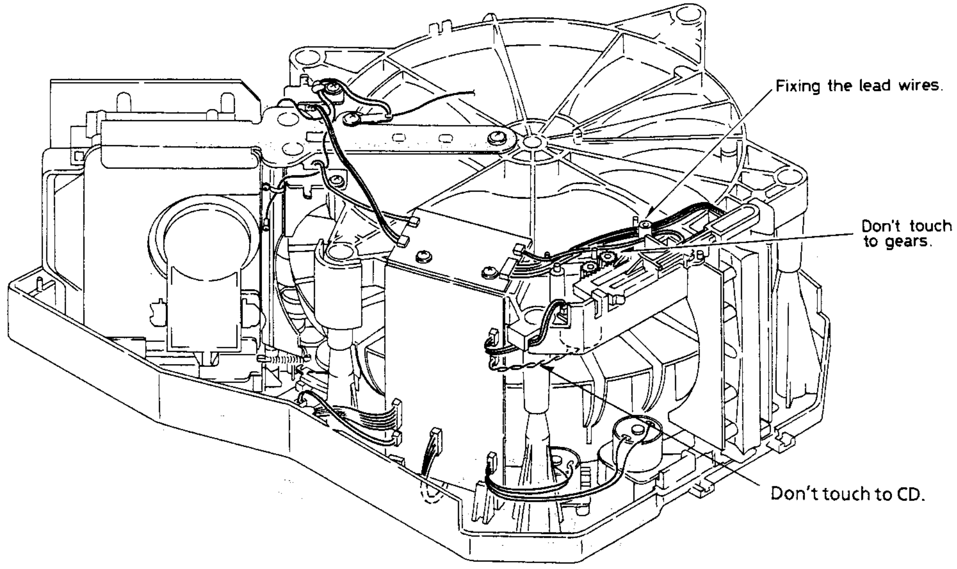
1. Chassis portion


DISC-TABLE
Fixing the lead wire
Don't touch to the gear portion

2. Play loading and chucking motor portion

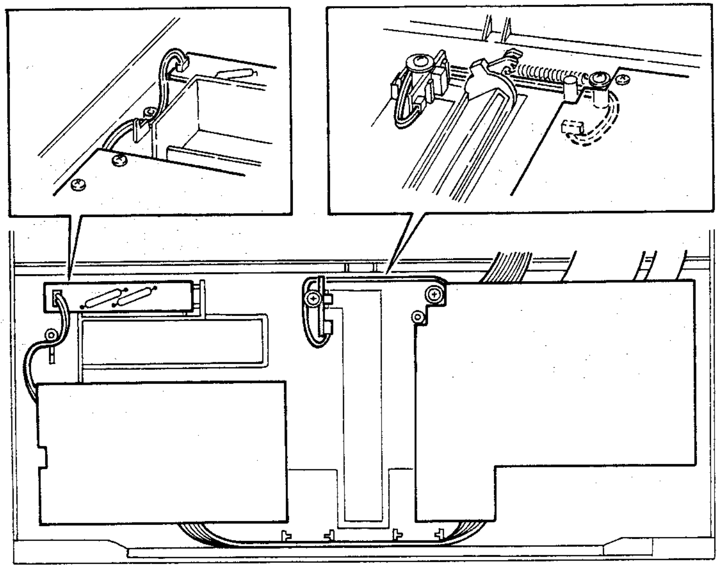

Don't float.
Lead wire fix in boss.
Don't touch to CD Servo P.C.Board.

3. Shutter and other portion


Fixing the lead wires.
Don't touch to gears.
Don't touch to CD.

AD WIRE ATTACHMENT

4. Front panel



DESCRIPTION OF OPERATION

Description of operation of 24-disc CD changer mechanism

The 24-disc CD changer mechanism is controlled and operated by the IC111 microprocessor.

1. DISC LOADING

The discs are loaded through the disc loading slot on the front panel and accommodated at their assigned positions on the disc table.

◆ The key numbers corresponding to the assigned positions where the discs are accommodated and the LOAD key are pressed by operating the key switches on the front panel of the unit.

1) Microprocessor (hereafter referred to as the "processor") IC111 compares the assigned disc number with the number of the disc positioned at the loading slot. It then drives the disc table motor so that the disc table will be turned in the direction (either clockwise or counterclockwise) that enables it to move in a shorter period of time.

2) After it has identified the key input, processor IC111 outputs the disc table motor drive signals from pins 44 and 45. These output signals are supplied to IC183 (LB1648), they are amplified, output from pins 3 and 10, and used to drive the disc table motor.

Further, the processor identifies the amount of the disc table's rotational movement. A control signal (H-SPEED), causing the disc table to turn at low speed when the disc table has moved by an amount equivalent to one disc number or at high speed when the disc table has moved by an amount equivalent to two or more disc numbers, is output from processor pin 37, and the voltage supplied to the motor is switched by setting Q1812 (DTC1245ES) on or off.

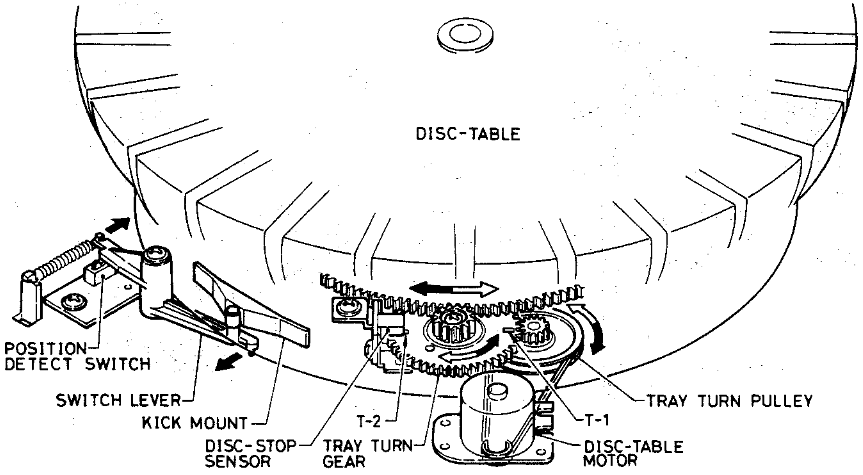
In other words, when the rotational movement of the disc table is an amount equivalent to two or more disc numbers, the motor starts turning at high speed, and when the rotational movement to the designated position is equivalent to 1 disc number, it turns at low speed, and then stops.

3) When the disc table motor starts turning, the tray turn pulley is rotated by the belt, and because the tray turn gear is interlocked with the disc table bottom gear, this causes the disc table to turn.

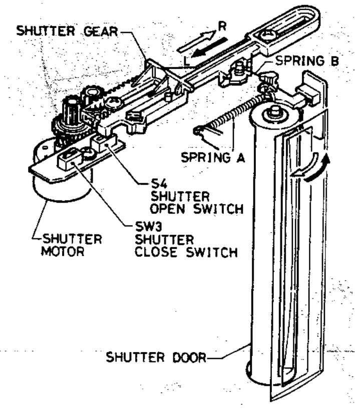
4) The tray turn gear has two square holes located diagonally across from each other, and each time the gear rotates, the light passing through disc-stop sensor D1810 (a photodiode) is converted into electrical signals at these square holes, and the ON signal from the diode is supplied to the PHOTO terminal (pin 2) of processor IC111.

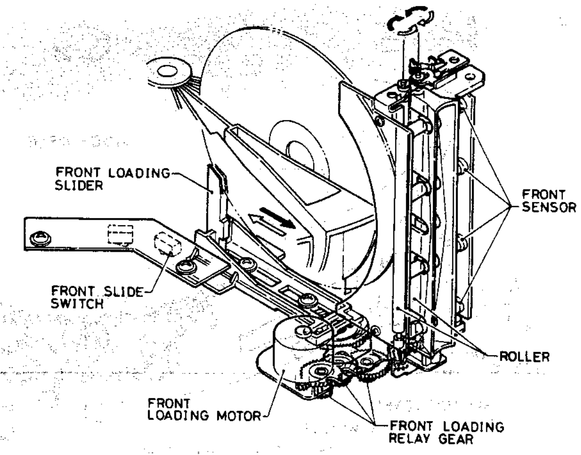
The processor identifies the number of times the square holes are detected by this signal or, in other words, the amount of rotational movement of the disc table. When the square holes are detected once, it means that the disc table has moved by an amount equivalent to one disc number (or an amount equivalent to two disc numbers with a complete rotation of the gear).

5) Under the disc table is attached a switch lever kick mount for detecting disc No.22 (initial position detection). When the position of disc No.22 arrives at the loading slot, the mount causes the switch lever to move in the direction of the arrow. Initial position detection switch is now set off. The signal from initial position detection switch is supplied to pin 20 (MECO) of IC111, the processor detects (by matrix of pin 20 and 70) the disc No.22 position and, based on this, the absolute positions of the disc numbers are identified.



6) When the assigned disc position reaches the loading slot and the table stops, the shutter opens. When a disc is loaded through the loading slot, it is drawn inside and accommodated on the disc table. After executing the operations described up to (5), processor IC111 outputs the shutter motor drive signal from pin 54 or 55. This signal is supplied to IC182 (LB1648) where it is amplified, and it is output from pin 4 or 9 to drive the shutter motor.
   When the shutter gear slides to the right, spring B turns the shutter door clockwise, and the door is now opened. Conversely, when the shutter gear slides to the left, spring A turns the shutter door counterclockwise, and the door is now closed.
   When the shutter is open, the shutter gear slides to the right and the shutter open switch is set on; when it is closed, the shutter gear slides to the left and the shutter close switch is set on.
   The signal from the shutter open or close switch is supplied to pin 20(MEC0) or pin 21(MEC1) of processor IC111(detects by matrix of processor IC111), which identifies whether the shutter is open or closed. When the shutter open and close switch is set on, the shutter motor stops.
7) Six transparent photo sensors are mounted on the inside of the roller unit inside the shutter. They serve to detect whether a disc is present or not something which they can do because a disc passes the sensor positions after it is inserted. The signals from the sensors are supplied to pins 25 to 30 (SENS1 to SENS6) of Schmitt trigger IC184 and after waveform shaping, they enter the processor. (After the shutter door is opened, the processor generates a 10-second timing signal.)
   First, the processor checks the signals from sensors 5 and 6. If the sensors are not off or, in other words, if no disc has been inserted, the shutter motor starts turning in the door closing direction, the door closes, and the standby status is established.
   When the sensors detect a disc during the 10-second timing, the front loading motor starts up. This time, the processor outputs the front loading motor drive signal from pin 48 (F LOAD+) or pin 49 (F LOAD-). This signal enters IC182 where it is amplified, and the front loading motor is started up by the drive signal which is output from pins 3 and 10 of this IC.
   When the motor starts up, the front loading relay gear rotates, the roller unit turns in the direction in which the disc is drawn inside, and the disc is received inside the mechanism.
   When the disc moves inside, sensors 3 and 4 go off and when the disc moves further and reaches the disc table where it is accommodated, these sensors go back on.
   The operation of sensors 3 and 4 is detected and, 500m seconds later, the front loading motor is stopped.
   Torque is transmitted from the front loading slip gear to the front loading cam gear, and the front loading slide then slides inward.
   When the front loading slide enters inside and the front slide reset switch is set on. The position of the disc at this time is such finally, the shutter motor is turned on, it performs the reverse operation to when the shutter is open, and the shutter door is closed.

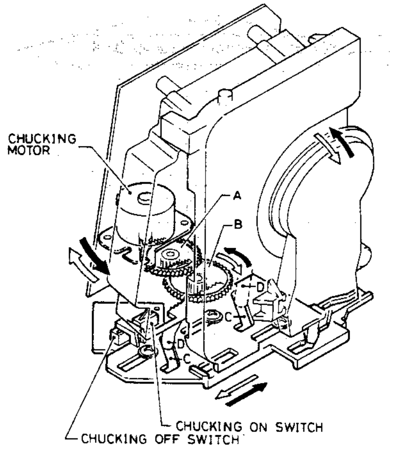


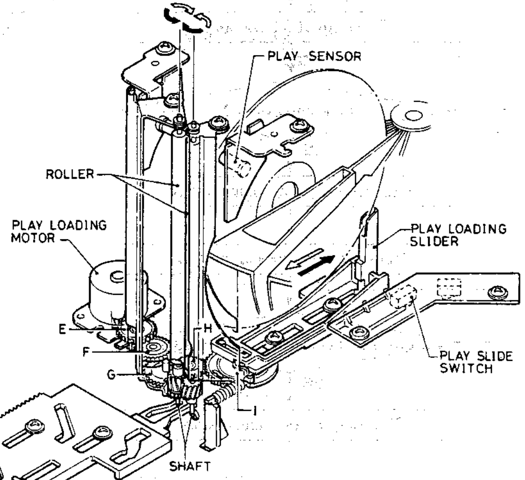


2. PLAY

By operating the front panel key switches, the disc with the assigned number is loaded onto the base mechanism and played.

1) The processor compares the assigned disc number with the number of the disc at the receiving position on the base mechanism. It then drives the disc table motor so that the disc table will be turned in the direction (either clockwise or counterclockwise) that enables it to move in a shorter period of time.
2) The disc table turns, and it operates in the same way as described in (1) until the disc with the assigned number reaches the position where it is received onto the base mechanism.
3) When the disc table stops, the processor outputs the chucking motor drive signal from pin 52 (CHUK+) or pin 53 (CHUK-). This signal is amplified by IC181 (LB1648) and output from pins 3 and 10 to drive the chucking motor. In this case, the chucking motor turns in the counterclockwise direction.
   When the motor starts turning, its torque is transmitted to gear A and gear B, and the chucking slide slides toward the outer circumference.
   Boss D on the bottom of the base mechanism is engaged in groove C so that when the chucking slide slides toward the outer circumference, the bottom of the base mechanism tilts toward the outside and chucking is released.
   When chucking is released, the knob on the chucking slide comes to the position where the chucking OFF switch is set on, and the switch comes on.
   When the chucking OFF switch comes on, processor detect (by matrix of pin 21 and 70) the chucking OFF switch has been set on.
4) Next, the play loading motor starts up and the disc moves from the disc table to the base mechanism.
   The LOAD+ or LOAD- signals are output from processor pins 50 and 51. These signals enter IC181 where they are amplified and output from pins 40 and 9 to cause the play loading motor to be turned.
   When the play loading motor starts turning, the gear (E, F, G and H) rotates, causing the rollers and cam gear (I) to rotate. The play slide moves to the outer circumference because the cam gear is latched to the play slide. The play slide has a boss which pushes the disc toward the base mechanism. The signal from the play slide reset switch is supplied to processor pin 21 (MEC1) so that S13 is turned on. (detect by matrix pin 21 and 69)
   The disc is held between the rollers and it moves toward the base mechanism. Installed on the rollers is the disc position detection sensor (D1836) and, after the play slide reset switch signal has been turned off, the processor detects the operation of this sensor and, after 250m seconds causes the play loading motor to stop.
   At the position where the disc has moved to the base mechanism, the chucking motor now rotates in the reverse direction. The chucking ON switch is turned on and this shuts down the chucking motor. Since the shaft arrives at the position where the chucking slide groove is open, the rollers are placed in a state where there is a gap between them. The disc, now chucked, is released, it enters the focus search mode, and the playback operation begins.





DESCRIPTION OF OPERATION

2. PLAY

By operating the front panel key switches, the disc with the assigned number is loaded onto the base mechanism and played.

1) The processor compares the assigned disc number with the number of the disc at the receiving position on the base mechanism. It then drives the disc table motor so that the disc table will be turned in the direction (either clockwise or counterclockwise) that enables it to move in a shorter period of time.
2) The disc table turns, and it operates in the same way as described in (1) until the disc with the assigned number reaches the position where it is received onto the base mechanism.
3) When the disc table stops, the processor outputs the chucking motor drive signal from pin 52 (CHUK+) or pin 53 (CHUK-). This signal is amplified by IC181 (LB1648) and output from pins 3 and 10 to drive the chucking motor. In this case, the chucking motor turns in the counterclockwise direction.

   When the motor starts turning, its torque is transmitted to gear A and gear B, and the chucking slide slides toward the outer circumference.

   Boss D on the bottom of the base mechanism is engaged in groove C so that when the chucking slide slides toward the outer circumference, the bottom of the base mechanism tilts toward the outside and chucking is released.

   When chucking is released, the knob on the chucking slide comes to the position where the chucking OFF switch is set on, and the switch comes on.

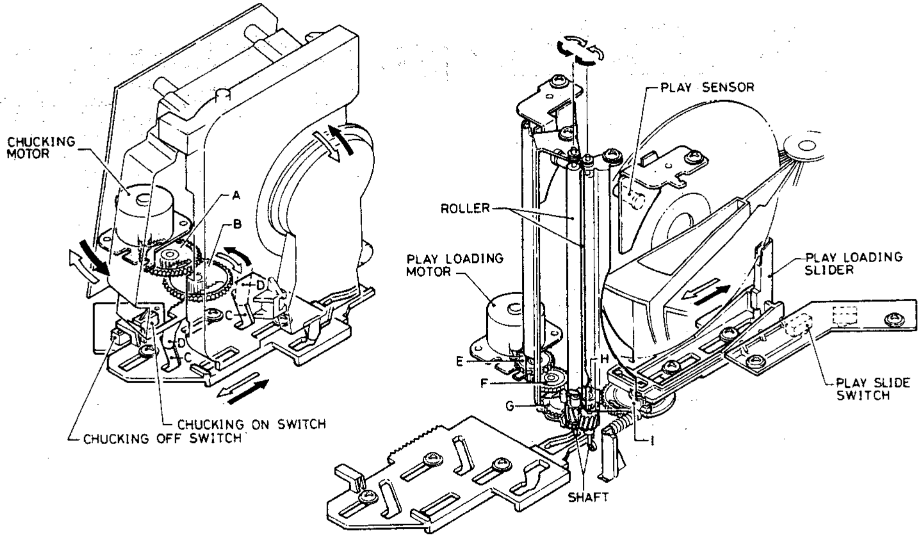
   When the chucking OFF switch comes on, processor detect (by matrix of pin 21 and 70) the chucking OFF switch has been set on.
4) Next, the play loading motor starts up and the disc moves from the disc table to the base mechanism.

   The LOAD+ or LOAD- signals are output from processor pins 50 and 51. These signals enter IC181 where they are amplified and output from pins 40 and 9 to cause the play loading motor to be turned.

   When the play loading motor starts turning, the gear (E, F, G and H) rotates, causing the rollers and cam gear (I) to rotate. The play slide moves to the outer circumference because the cam gear is latched to the play slide. The play slide has a boss which pushes the disc toward the base mechanism. The signal from the play slide reset switch is supplied to processor pin 21 (MEC1) so that S13 is turned on. (detect by matrix pin 21 and 69)

   The disc is held between the rollers and it moves toward the base mechanism. Installed on the rollers is the disc position detection sensor (D1836) and, after the play slide reset switch signal has been turned off, the processor detects the operation of this sensor and, after 250m seconds causes the play loading motor to stop.

   At the position where the disc has moved to the base mechanism, the chucking motor now rotates in the reverse direction. The chucking ON switch is turned on and this shuts down the chucking motor. Since the shaft arrives at the position where the chucking slide groove is open, the rollers are placed in a state where there is a gap between them. The disc, now chucked, is released, it enters the focus search mode, and the playback operation begins.



DESCRIPTION OF OPERATION

3. EJECT

By pressing the EJECT button on the front panel, the disc on the base mechanism is returned to the loading slot so that the operator can remove it from the unit.

1) First, the chucking motor is turned to counterclockwise. The chucking slide moves to the outer circumference, and the chucking OFF switch is turned on. The processor detects this and stops the motor from turning. Since, along with slide movement, the shafts of the rollers move in the direction in which the groove is reduced, the rollers move in such a way as to hold the disc between them.
2) The processor then outputs the signal which causes the play loading motor to turn and, at the same time as the motor turns, the play slide moves inside the disc table. The processor detects the statuses of sensor 1 and the play slide reset switch. After both have been turned on, the processor stops the play loading motor after a timing interval of 500m seconds.
3) Next, the processor turns the chucking motor to clockwise. The base mechanism is placed in the chucking status, the processor detects that the chucking ON switch has been turned on, and it stops the chucking motor.
4) The processor turns disc table to counterclockwise. It turns the table at high speed until it is immediately in front of the loading (unloading) slot and, finally, it turns the table at low speed and stops it at the loading slot.
5) Next, the processor outputs the rotation command to the shutter motor. The shutter moves in the open direction.
6) The front loading motor now turns in the unloading direction, causing the front roller to turn in the disc unloading direction. At the same time, the front loading slide presses the disc, causing it to be held between the rollers. The disc, held between the rollers, is now unloaded from the unit by the rollers, and the moment when the operation signals of sensors 2, 3, 4 and 7 are detected, the disc is stopped at that position.

   This is the position where the hole in the disc is exposed outside of the unit, enabling the operator to remove the disc.
7) When the operator removes the disc, all the sensors go on. This is detected, after 10 seconds causing the shutter motor to turn in the close direction and the door to close.

4. POWER ON

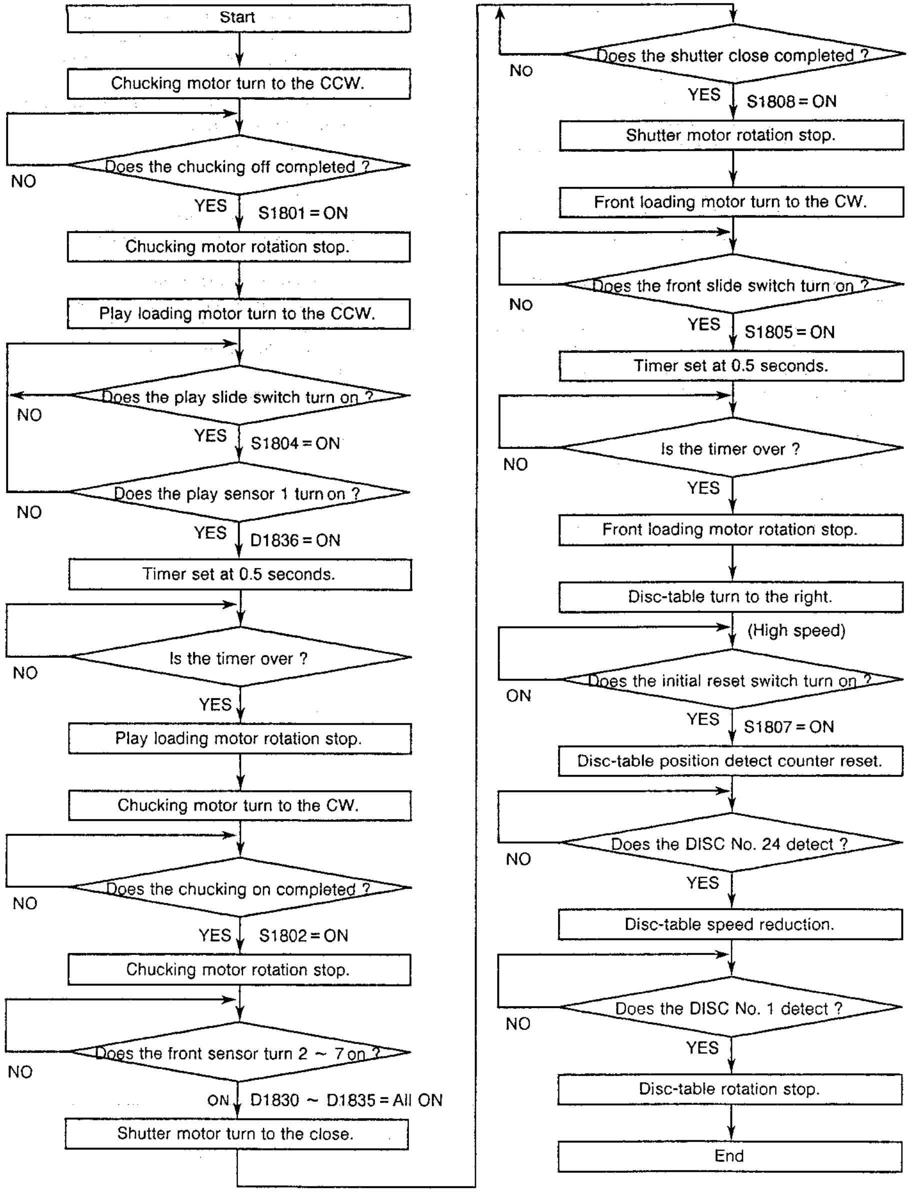
When the power is turned on, the unit is the initial operation. This is for the mechanism to demonstrate its functions properly.

FLOW CHART OF OPERATION

24-Disc Changer Mechanism operation flow chart with Micro processor.

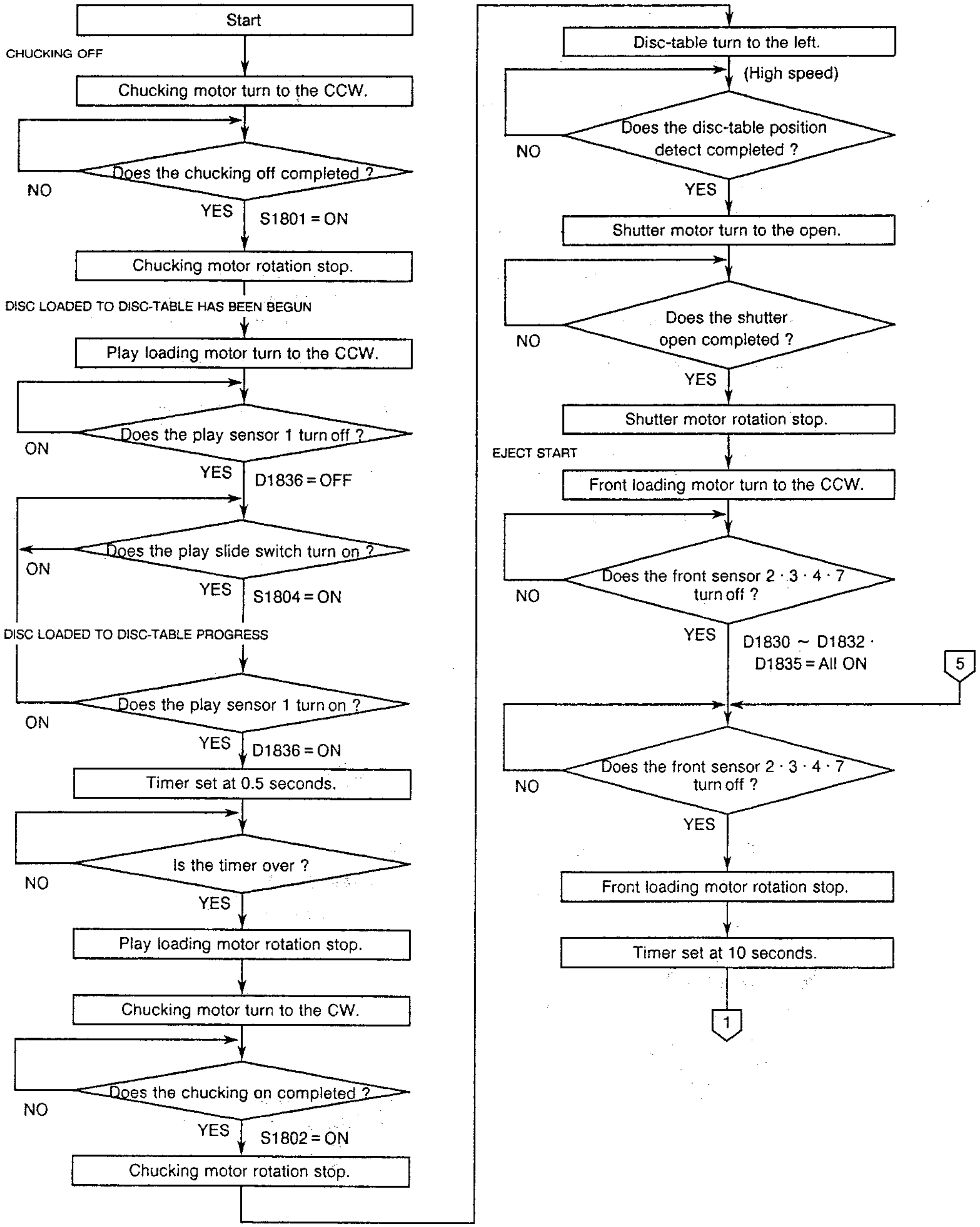
Note CW: Clock Wise
CCW: Counter Clock Wise

1. Initial operation when power on

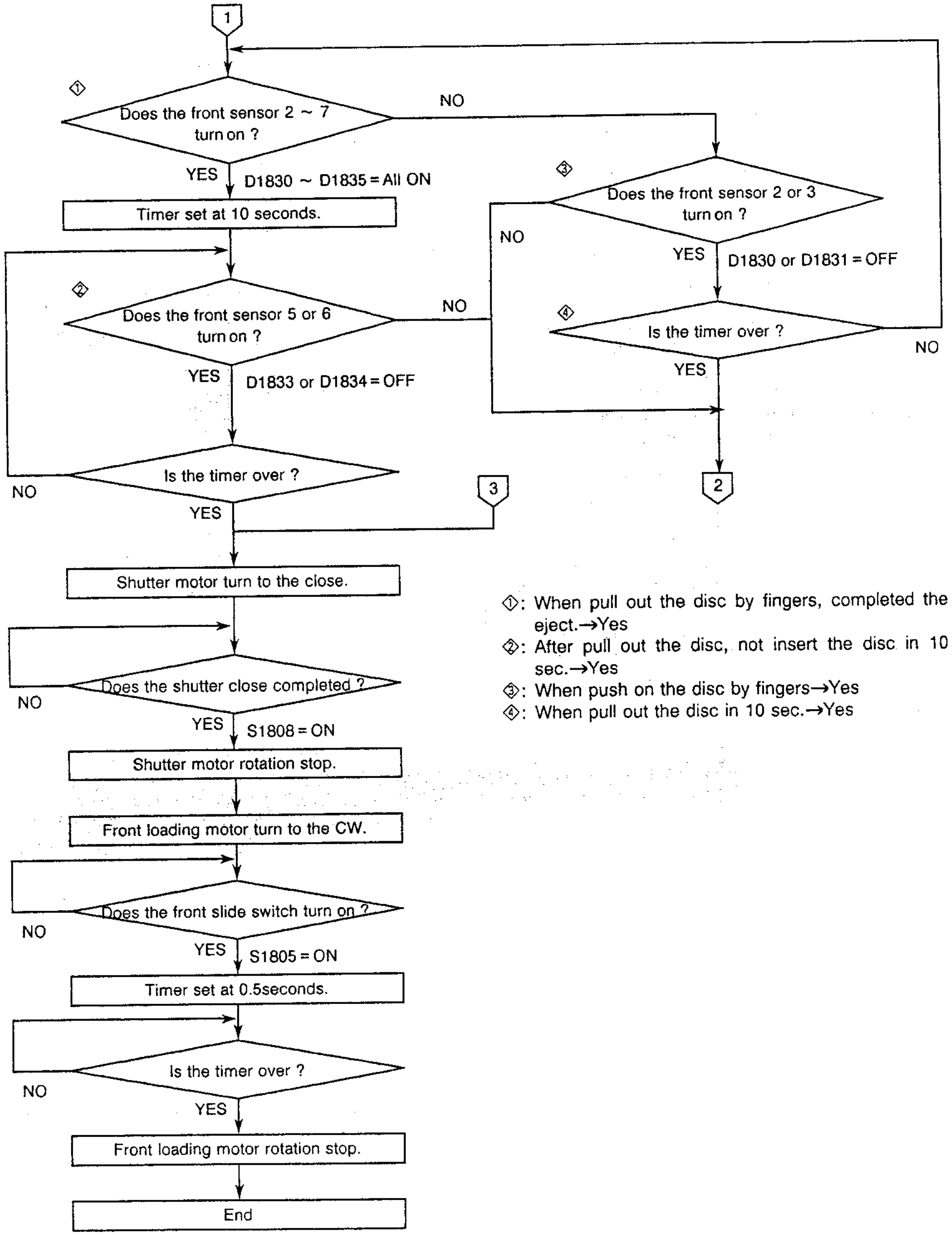

Start
Chucking motor turn to the CCW.
Does the chucking off completed ?
NO
YES
S1801 = ON
Chucking motor rotation stop.
Play loading motor turn to the CCW.
Does the play slide switch turn on ?
NO
YES
S1804 = ON
Does the play sensor 1 turn on ?
NO
YES
D1836 = ON
Timer set at 0.5 seconds.
Is the timer over ?
NO
YES
Play loading motor rotation stop.
Chucking motor turn to the CW.
Does the chucking on completed ?
NO
YES
S1802 = ON
Chucking motor rotation stop.
Does the front sensor turn 2 ~ 7 on ?
NO
ON
D1830 ~ D1835 = All ON
Shutter motor turn to the close.
Does the shutter close completed ?
NO
YES
S1808 = ON
Shutter motor rotation stop.
Front loading motor turn to the CW.
Does the front slide switch turn on ?
NO
YES
S1805 = ON
Timer set at 0.5 seconds.
Is the timer over ?
NO
YES
Front loading motor rotation stop.
Disc-table turn to the right.
(High speed)
Does the initial reset switch turn on ?
ON
YES
S1807 = ON
Disc-table position detect counter reset.
Does the DISC No. 24 detect ?
NO
YES
Disc-table speed reduction.
Does the DISC No. 1 detect ?
NO
YES
Disc-table rotation stop.
End

FLOW CHART OF OPERATION

2. Eject the Disc in base mechanism


Start
CHUCKING OFF
Chucking motor turn to the CCW.
Does the chucking off completed ?
NO
YES
S1801 = ON
Chucking motor rotation stop.
DISC LOADED TO DISC-TABLE HAS BEEN BEGUN
Play loading motor turn to the CCW.
Does the play sensor 1 turn off ?
ON
YES
D1836 = OFF
Does the play slide switch turn on ?
ON
YES
S1804 = ON
DISC LOADED TO DISC-TABLE PROGRESS
Does the play sensor 1 turn on ?
ON
YES
D1836 = ON
Timer set at 0.5 seconds.
Is the timer over ?
NO
YES
Play loading motor rotation stop.
Chucking motor turn to the CW.
Does the chucking on completed ?
NO
YES
S1802 = ON
Chucking motor rotation stop.
Disc-table turn to the left.
(High speed)
Does the disc-table position detect completed ?
NO
YES
Shutter motor turn to the open.
Does the shutter open completed ?
NO
YES
Shutter motor rotation stop.
EJECT START
Front loading motor turn to the CCW.
Does the front sensor 2 · 3 · 4 · 7 turn off ?
NO
YES
D1830 ~ D1832 · D1835 = All ON
5
Does the front sensor 2 · 3 · 4 · 7 turn off ?
NO
YES
Front loading motor rotation stop.
Timer set at 10 seconds.
1

FLOW CHART OF OPERATION

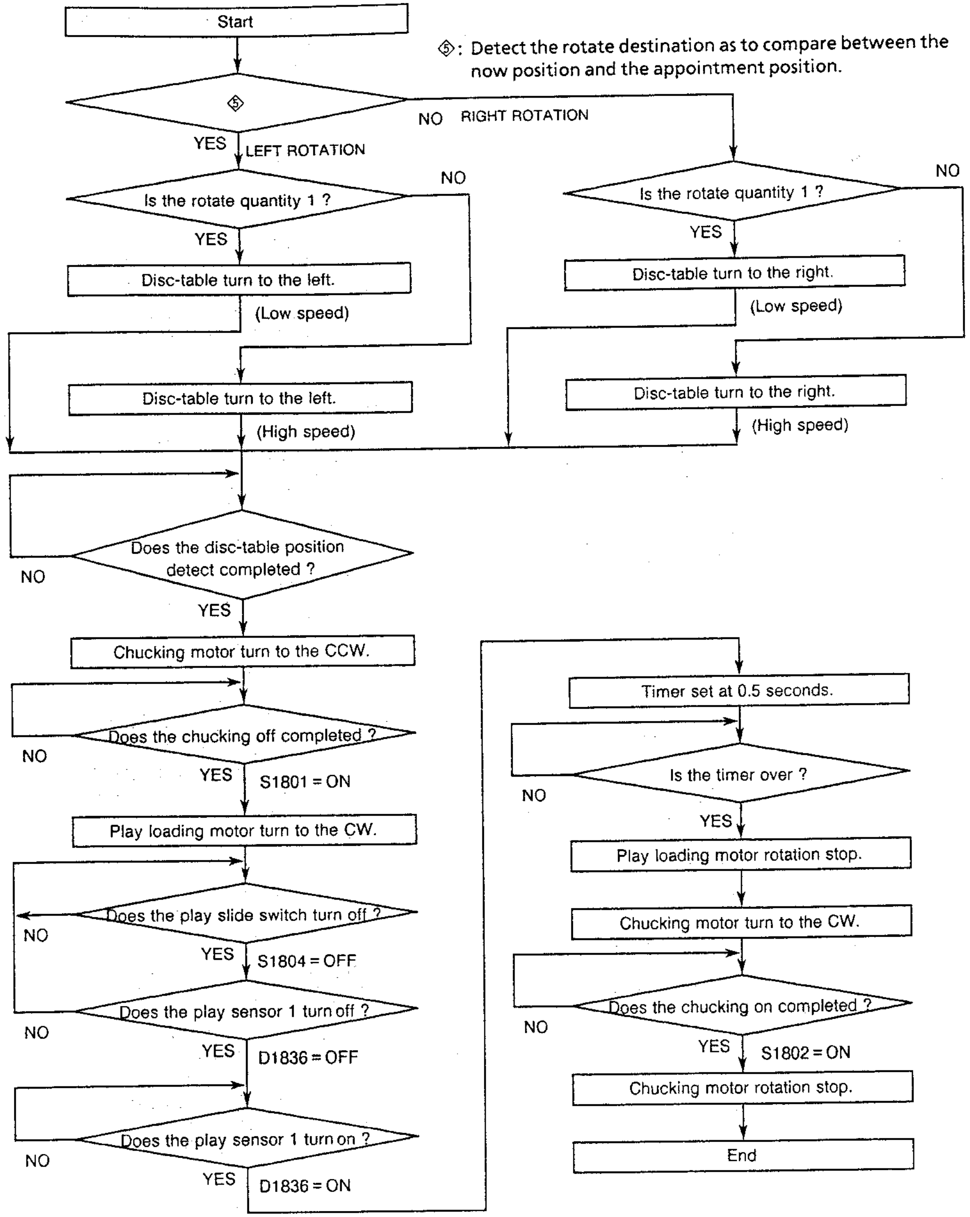

1
①
Does the front sensor 2 ~ 7 turn on ?
NO
YES
D1830 ~ D1835 = All ON
Timer set at 10 seconds.
③
Does the front sensor 2 or 3 turn on ?
NO
YES
D1830 or D1831 = OFF
②
Does the front sensor 5 or 6 turn on ?
NO
YES
D1833 or D1834 = OFF
④
Is the timer over ?
YES
NO
Is the timer over ?
NO
YES
3
2
Shutter motor turn to the close.
Does the shutter close completed ?
NO
YES
S1808 = ON
Shutter motor rotation stop.
Front loading motor turn to the CW.
Does the front slide switch turn on ?
NO
YES
S1805 = ON
Timer set at 0.5seconds.
Is the timer over ?
NO
YES
Front loading motor rotation stop.
End

①: When pull out the disc by fingers, completed the eject.→Yes
②: After pull out the disc, not insert the disc in 10 sec.→Yes
③: When push on the disc by fingers→Yes
④: When pull out the disc in 10 sec.→Yes

FLOW CHART OF OPERATION

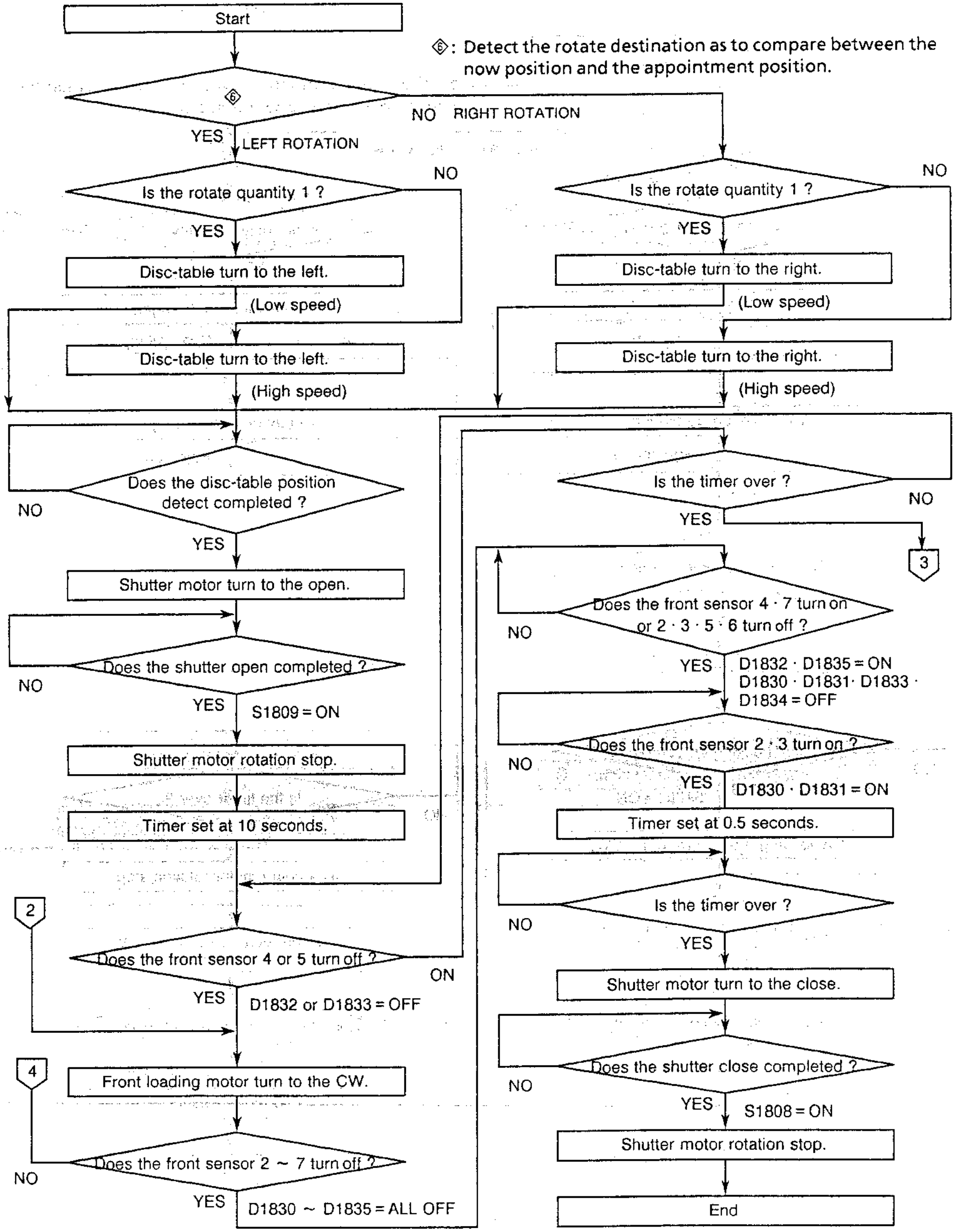
3. Chucking the appointment disc on the disc-table

⑤: Detect the rotate destination as to compare between the now position and the appointment position.

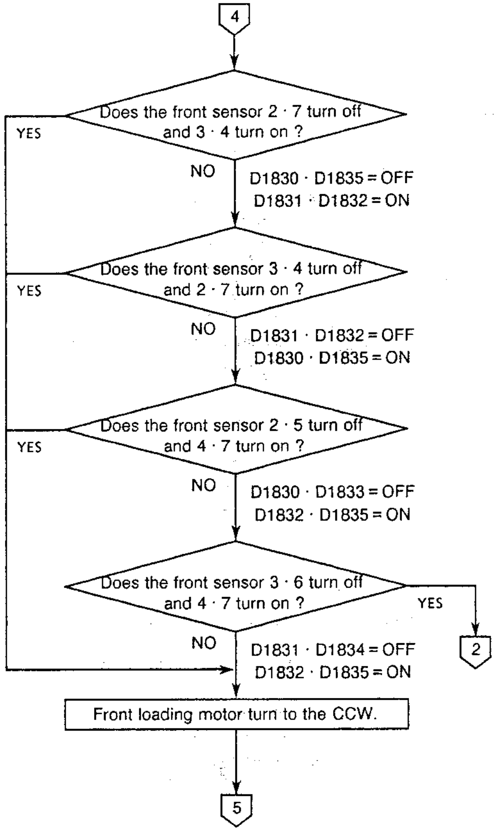

Start
⑤
NO
RIGHT ROTATION
YES
LEFT ROTATION
Is the rotate quantity 1 ?
NO
YES
Disc-table turn to the left.
(Low speed)
Disc-table turn to the left.
(High speed)
Is the rotate quantity 1 ?
NO
YES
Disc-table turn to the right.
(Low speed)
Disc-table turn to the right.
(High speed)
Does the disc-table position detect completed ?
NO
YES
Chucking motor turn to the CCW.
Does the chucking off completed ?
NO
YES
S1801 = ON
Play loading motor turn to the CW.
Does the play slide switch turn off ?
NO
YES
S1804 = OFF
Does the play sensor 1 turn off ?
NO
YES
D1836 = OFF
Does the play sensor 1 turn on ?
NO
YES
D1836 = ON
Timer set at 0.5 seconds.
Is the timer over ?
NO
YES
Play loading motor rotation stop.
Chucking motor turn to the CW.
Does the chucking on completed ?
NO
YES
S1802 = ON
Chucking motor rotation stop.
End

4. Insert the disc to the appointment position from the frontend

◈: Detect the rotate destination as to compare between the now position and the appointment position.


Start
◈
NO
RIGHT ROTATION
YES
LEFT ROTATION
Is the rotate quantity 1 ?
NO
YES
Disc-table turn to the left.
(Low speed)
Disc-table turn to the left.
(High speed)
Is the rotate quantity 1 ?
NO
YES
Disc-table turn to the right.
(Low speed)
Disc-table turn to the right.
(High speed)
Does the disc-table position detect completed ?
NO
YES
Shutter motor turn to the open.
Does the shutter open completed ?
NO
YES
S1809 = ON
Shutter motor rotation stop.
Timer set at 10 seconds.
2
Does the front sensor 4 or 5 turn off ?
ON
YES
D1832 or D1833 = OFF
4
Front loading motor turn to the CW.
Does the front sensor 2 ~ 7 turn off ?
NO
YES
D1830 ~ D1835 = ALL OFF
Is the timer over ?
NO
YES
3
Does the front sensor 4 · 7 turn on or 2 · 3 · 5 · 6 turn off ?
NO
YES
D1832 · D1835 = ON
D1830 · D1831 · D1833 · D1834 = OFF
Does the front sensor 2 · 3 turn on ?
NO
YES
D1830 · D1831 = ON
Timer set at 0.5 seconds.
Is the timer over ?
NO
YES
Shutter motor turn to the close.
Does the shutter close completed ?
NO
YES
S1808 = ON
Shutter motor rotation stop.
End

5. 8 cm disc operation


4
Does the front sensor 2 · 7 turn off and 3 · 4 turn on ?
YES
NO
D1830 · D1835 = OFF
D1831 · D1832 = ON
Does the front sensor 3 · 4 turn off and 2 · 7 turn on ?
YES
NO
D1831 · D1832 = OFF
D1830 · D1835 = ON
Does the front sensor 2 · 5 turn off and 4 · 7 turn on ?
YES
NO
D1830 · D1833 = OFF
D1832 · D1835 = ON
Does the front sensor 3 · 6 turn off and 4 · 7 turn on ?
YES
2
NO
D1831 · D1834 = OFF
D1832 · D1835 = ON
Front loading motor turn to the CCW.
5

SERVICE MODE (CD)

Specifications

To enter any service mode other, first simultaneously press the STOP and CATEGORY-SUB keys on the unit. This accesses the service mode entry state. Now press one of the buttons on the unit to enter a service mode. As the service mode entry state is discontinued after 1 second elapses, the system will enter a service mode only if the next key is pressed within one second.

1. Checking the key input signal connections

- Enter this mode by pressing the DISC SKIP - DOWN key during the service mode entry state.
- When the unit enters this mode, only the indications corresponding to the keys listed below illuminate on the display.
- In this mode, each time one of the unit's keys is pressed, the corresponding indication on the fluorescent display goes out. (The portions of the display that are not visible increase.)
- The unit is operating normally if, after pressing all of the keys listed below, no indications are visible on the display.

KEY	DISPLAY	KEY	DISPLAY	KEY	DISPLAY
LOAD/EJECT	11	ENTER CATEGORY MAIN	20	0	10
STOP	✕	ENTER CATEGORY SUB	---	9	9
PLAY/PAUSE	12	DISC SKIP UP	21	8	8
FWD SKIP	13	DISC SKIP DOWN	22	7	7
BACK SKIP	14	MEMORY	23	6	6
CATEGORY SELECT MAIN	15	CLEAR	24	5	5
CATEGORY SELECT SUB	16			4	4
INTRO	17			3	3
RANDOM	18			2	2
REPEAT	19			1	1

✕ : Releases the key checking mode and returns the set to the normal mode.
--- : Used to enter the service mode. It is not necessary to press this key.

TABLE 1 : Corresponding keys and displays in the key checking mode

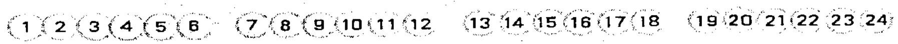


FIGURE 1 : The Lower part of FL (Fluorescent Rays Tube Display)

2. Checking FL connections

- Enter this mode by pressing the REPEAT key during the service mode entry state.
- When the unit enters this mode, all of the indications on the fluorescent display goes out.
- Each time the REPEAT key is pressed, the following cycle is repeated: all lit → h → 5 → extinguished → ·····.
- Press the STOP key or POWER OFF to exit this mode and return to the normal mode.

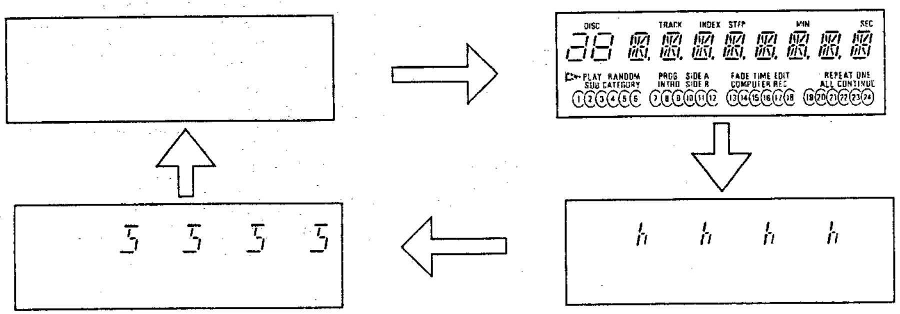


FIGURE 2 : Checking connections for FL (Fluorescent Rays Tube Display)

SERVICE MODE (CD)

3. CD tracking balance adjusting mode

- Enter this mode by pressing the PLAY/PAUSE key during the service mode entry state.
- If the power is off when this mode is entered, the power automatically comes on.
- In this mode, the tracking balance adjustment state (tracking is off) is automatically entered.
- In this mode, the tracking balance adjustment state can be entered by pressing the MEMORY key during playing. Pressing the PLAY key in this state turns on the tracking servo and causes playing to begin.
- This mode is released when press the STOP key or power is turned off, and causes stop state.

4. CD operation display mode

- Enter this mode by pressing the MEMORY key during the service mode entry state.
- If the power is off when this mode is entered, the power automatically comes on.
- In this mode, when a CD function is activated an indication of the type listed in Table 2, indicting the CD operation, appears in the track and index number section of the fluorescent display instead of the normal indication.
- In this mode, indications different from those that normally appear are displayed in the minute and second sections of the fluorescent display, and numerals such as those listed in Table 3 appear in the disc number other indications appear.
- This mode is released when press the STOP key or power is turned off.

DISPLAY	OPERATION	DISPLAY	OPERATION
0 0	Focus search has been begun	5 2	L-point access (FWD64 track jump)
0 1	Focus search has been begun	5 3	L-point access (REV16 track jump)
0 2	Waiting for focusing	5 4	L-point access (FWD16 track jump)
0 3	Focusing	5 5	L-point access (REV1 track jump)
0 4	Spindle kick is in progress	5 6	L-point access has been completed
0 5	Both CLV and tracking are ON	6 0	Pausing has begun
0 6	Both CLV and tracking are ON	6 3	Pause (REV16 track jump)
0 F	Focus search has been completed (success, failure)	6 4	Pause (FWD16 track jump)
1 0	Spindle braking has begun	6 5	Pause (REV1 track jump)
1 1	Spindle braking is in progress	6 6	Pause (trace)
1 2	Pick return is in progress	7 0	Music access has begun
1 F	Spindle braking & pick return have been completed	7 1	Music access (high-speed access has begun)
2 0	Fast forwarding is in progress	7 2	Music access (high-speed access is in progress)
2 1	Rewinding is in progress	7 3	Music access (high-speed access has been completed)
3 0	Playing has begun	7 4	Music access (high-speed access has been completed)
3 1	Playing is in progress	7 5	Music access (high-speed access has been completed)
3 2	Playing is in progress (skip return operation)	7 6	Music access (REV64 track jump)
4 0	TOC reading has been begun	7 7	Music access (FWD64 track jump)
4 1	TOC reading is in progress	7 8	Music access (REV16 track jump)
4 F	TOC reading has been completed (success/failure)	7 9	Music access (FWD16 track jump)
5 0	L-point access has been begun	7 F	Music access (final stage)
5 1	L-point access (REV64 track jump)		

DISPLAY: Track No. and Index No.

TABLE 2 : Displays during the CD operation mode (Track + Index No. section)

DISC No.	STATE OF CD ERROR
	Good
1	Focusing is not possible in focus search.
2	The subcode is not input during disc startup.
3	TOC cannot be read.
4	The focus was lost while the servo was on (during playing, etc.).
5	The subcode is not input while the servo is on (during playing, etc.).

TABLE 3 : Display of CD errors (Disc No. section)

5. EEPROM clear mode

- From service mode entry states, press the CLEAR key. This clear the contents of the EEPROM and exits the service mode.

6. Disc continuous load/eject mode

- Pressing the EJECT key from service mode entry status causes the following operations to take place, after which the unit exits the service mode.
- Pressing the EJECT key when no disc is loaded in the unit activates the disc continuous load mode.
- Pressing the EJECT key when a disc is loaded in the unit activates the disc continuous eject mode.
- Note that the above operations do not take place if this mode is entered while a disc load or eject is in progress.
- Note that even if a disc are loaded, the unit does not switch to the disc continuous eject mode if the EJECT key is pressed for a number for which there is no disc. (That number only switches to disc load mode.)

7. Mechanism error display mode

- Enter this mode by pressing the 1 of DISC SELECT key during the servile mode entry state.
- In this mode, when an error occurred an indication of the type listed in Table 4 ~ 10, indicting the CD mechanism operation, appears in the track and index number sections of the fluorescent display instead of the normal indication. If there is no error, "FF FF" is displayed. If an error occurs, the mode and task are displayed in the track and index number sections, respectively.
- This mode is released when press the STOP key or power is turned off.

DISPLAY	OPERATION
8 0	Disctable rotation has been begun (Continue with index No.1)
8 1	Disctable position detect complete? (Continue with index No.E)
8 2	Chucking off complete? (S1801 on? Continue with index No.13)
8 3	Play loading(From disctable to base mechanism) has been begun OK? (S1804 off, Sensor 1 off, Continue with index No.4)
8 4	Play loading(From disctable to base mechanism) has been completed? (Sensor 1 on? Continue with index No.5)
8 5	Disc movement maintenance (250 msec. standby after sensor 1 on. Continue with index No. = 6)
8 6	Chucking complete? (S1802 on? Continue with index No. = D)
8 7	Chucking complete? (Index No.2 in case of error, S1802 on? Continue with index No.2)
8 8	Play Loading(From base mechanism to disctable) (Index No.3 in case of error, S1804 on? Continue with index No.3)
8 9	Play Loading(From base mechanism to disctable) (Index No.4 in case of error, S1804 on? Continue with index No.3)
8 A	Chucking off complete? Index No.6 in case of error, S1801 on? Continue with index No.6)
8 B	Aging mode (1 sec. standby, Continue with index No.C)
8 C	Aging mode (Continue with chucking off and Loading mode after 1 sec.)
8 D	Chucking maintenance (End. During aging, continue with index No.B)
8 E	Fine adjustment of the Disctable position detection has been begun (Continue with index No.10)
8 10	Fine adjustment of the Disctable position detection has been begun complete? (Continue with index No.2)
8 13	Chucking off maintenance (Continue with index No.3)

TABLE 4 : DISCTABLE ROTATION AND CHUCKING ON

DISPLAY	OPERATION
9 0	Chucking off has been begun (Continue with index No.1)
9 1	Chucking off complete? (S1801 on? Continue with index No.A)
9 2	Play Loading(From base mechanism to disctable) has been begun OK? (Sensor 1 off? S1804 on? Continue with index No.3)
9 3	Play Loading(From base mechanism to disctable) in progress (Sensor 1 on? Continue with index No.4)
9 4	Play Loading(From base mechanism to disctable) complete? (500 msec. passed since sensor 1 on? Continue with index No.5)
9 5	Chucking complete? (S1802 on? Continue with index No.B)
9 6	Chucking off complete? (Index No.5 in case of error, S1801 on? Continue with index No.5)
9 7	Chucking complete? (Index No.1 in case of error, S1802 on? Continue with index No.1)
9 8	Play loading(From disctable to base mechanism).(Index No.2 in case of error, S1804 off? Sensor 1 on? Continue with index No.2)
9 9	Play loading(From disctable to base mechanism).(Index No.3 in case of error, S1804 off? Sensor 1 on? Continue with index No.2)
9 A	Chucking off maintenance (Continue with index No.2)
9 B	Chucking maintenance (End)

TABLE 5 : CHUCKING OFF AND LOADING

DISPLAY	OPERATION
A 0	Disctable rotation has been begun (Continue with index No.1)
A 1	Disctable position detect complete? (Continue with index No.13)
A 2	Shutter open complete? (S1809 on? Continue with index No.D)
A 3	Wait for disc insertion (sensor 5 or sensor 6 off? Continue with index No.4)
A 4	Front loading has been begun OK? (Sensors 2, 3, 4 and 7 off? Continue with index No.5)
A 5	Front loading in progress (Sensors 4 and 7 on and sensors 2, 3, 5 and 6 off? Continue with index No.6)
A 6	Front loading complete? (Sensors 2 ~ 7 on? Continue with index No.7)
A 7	Front loading maintenance (500 msec. standby after sensors 2 - 7 on. Continue with index No.8)
A 8	Shutter closed complete? (S1808 on? Continue with index No.E)
A 9	Shutter close complete? (Index No.2 in case of error, S1809 on? Continue with index No.2)
A A	Shutter closed complete? (Index No.3 in case of no disc inserted, S1808 on? Continue with index No.12)
A B	Front kick-out switch on? (S1805 on? Continue with index No.11)
A C	Shutter open complete? (Index No.8 in case of error, S1809 on? Continue with index No.8)
A D	Shutter open maintenance (Continue with index No.3)
A E	Shutter closed maintenance (End. During aging, continue with disc chucking mode)
A 10	Shutter open complete? (Disc inserting in case of S1809 off , S1809 on? Continue with index No.4)
A 11	Front kick-out switch on maintenance (End. No disc insert)
A 12	Shutter closed maintenance (Continue with index No.B)
A 13	Fine adjustment of the disctable position detection has been begun (Continue with index No.14)
A 14	Fine adjustment of the disctable position detection complete? (Continue with index No.2)

TABLE 6 : DISCTABLE ROTATION AND DISC INSERTION AND SHUTTER CLOSE

DISPLAY	OPERATION
B 0	Disctable rotation has been begun (Continue with index No.1)
B 1	Disctable position detect complete? (Continue with index No.C)
B 2	Shutter open complete? (S1809 on? Continue with index No.9)
B 3	Disc eject has been begun OK? (Sensors 2 - 7 off? Continue with index No.4)
B 4	Disc eject complete? (Sensors 2, 3, 4 and 7 on and sensors 5 and 6 off? During aging, continue with index No.B)
B 5	Disc extraction? (Sensors 2 - 7 on? Continue with disc loading mode)
B 6	Shutter close complete? (Index no. 2 in case of error, S1808 on? Continue with index No.2)
B 7	Front loading(To disctable) complete? (Index No.3 in case of error, S1805 on? sensor 2 and 3 on? Continue with index No.3)
B 8	Front loading(To disctable) complete? (Index No.4 in case of error)
B 9	Shutter open maintenance (500 msec. passed since after sensor S1809 on? Continue with index No.3)
B A	Shutter reopen (Disc ejecting in case of S1809 off , S1809 on? Continue with index No.4)
B B	Aging mode (Continue with disc loading mode 500 msec. after completion of index No.4)
B C	Fine adjustment of the disctable position detection has been begun (Continue with index No.D)
B D	Fine adjustment of the disctable position detection complete? (Continue with index No.2)

TABLE 7 : DISCTABLE ROTATION AND EJECT

DISPLAY	OPERATION
C 0	Chucking off has been begun (Continue with index No.1)
C 1	Chucking off complete? (S1801 on? Continue with index No.11)
C 2	Play loading (From base mechanism to disctable) in progress ? (S1804 on? sensor 1 on? Continue with index No.4)
C 3	Play loading (From disctable to base mechanism) (Index No.2 in case of error, continue with index No.2)
C 4	Play loading (To disctable) complete? (500 msec. passed since after index No, = 2? Continue with index No.5)
C 5	Chucking complete? (S1802 on? Continue with index No.13)
C 6	Chucking off complete? (Index No.5 in case of error, S1801 on? Continue with index No.5)
C 7	Chucking complete? (Index No.1 in case of error, S1802 on? Continue with index No.1)
C 8	Be found disc in roller for front? (In case of no disc, S1808 on, Continue with index No.D) (Continue with index No.14 when be disc in Eject position) (Continue with index No.D when sensor off any one of the 2,3,4,or 7 at case of be disc)
C 9	Front kick-out switch on? (S1805 on? Continue with index No.C)
C A	Disctable position detection complete? (Continue with index No.E)
C B	Shutter open complete?(Index No.8 in case of error, S1809 on? Continue with index No.8)
C C	Front kick-out switch on maintenance, disctable rotation has been begun (Continue with index No.4)
C D	Shutter close maintenance (Continue with index No.9)
C E	Fine adjustment of the disctable position detection has been begun (Continue with index No.10)
C 10	Fine adjustment of the disctable position detection complete? (End. Continue with disc check mode when disc on/off checking)
C 11	Chucking off maintenance (Continue with index No.2)
C 12	Insertion side loading motor reverse rotation (Index No.9 in case of error, continue with index No.9)
C 13	Chucking maintenance (Continue with index No.8)
C 14	Disc eject status? (Sensor 2 ~ 7 on? Continue with index No.8)

TABLE 8 : INITIAL RESET

DISPLAY	OPERATION
D 0	Disctable rotation has been begun (Continue with index No.1)
D 1	Disctable position detect complete? (Continue with index No.9)
D 2	Chucking off complete? (S1801 on? Continue with index No.B)
D 3	Disc present/absent determined (Present when sensor 1 off . Continue with index no. 6)
D 4	Loading(To disctable) complete? (500 msec. passed since after index No,6? continue with index No.5)
D 5	Chucking complete? (S1802 on? Continue with index No.C)
D 6	Play loading(From base mechanism to disctable) has been begun OK?(Sensor 1 on? S1804 on? Continue with index No.4)
D 7	Chucking complete? (Index No.2 in case of error, S1802 on?)
D 8	Disctable position detection complete? (Continue with index No.D)
D 9	Fine adjustment of the disctable position detection has been begun (Continue with index No.A)
D A	Fine adjustment of the disctable position detection complete? (Continue with index No.2)
D B	Chucking off maintenance (Continue with index No.3)
D C	Chucking off maintenance (Continue with index No.0 of table 7 or index No.8 of table 4)
D D	Fine adjustment of the disctable position detection has been begun (Continue with index No.E)
D E	Fine adjustment of the disctable position detection complete? (End)

TABLE 9 : Disc present/absent check

DISPLAY	OPERATION
E 0	Power off processing start (Continue with index No. 1, 3, 7, A, B or D)
E 1	Disctable position detection complete? (Continue with index No.2 if all no disc, otherwise end)
E 2	Disctable position detection complete? (End after disc No.4 comes to the front)
E 3	Shutter close complete? (S1808 on? Continue with index No.4)
E 4	Shutter close maintenance (Continue with index No.5)
E 5	Front kick-out switch on? (S1805 on? Continue with index No.6)
E 6	Front kick-out switch maintenance or Shutter close maintenance(Continue with index No.2 if all no disc, otherwise end)
E 7	Front loading(Disc load to disctable from roller of front portion) complete? (sensor 2 ~ 7 on? Continue with index No.8)
E 8	Disc loading maintenance (500 msec. wait after sensor 2 ~ 7 on, continue with index No.9)
E 9	Shutter close (S1808 on? Continue with index no. 6)
E A	Chucking on complete? (S1802 on? Continue with index No.10)
E B	Play loading(From base mechanism to disctable) in progress (Sensor 1 on? S1804 on? Continue with index No.C)
E C	Loading(To disctable) complete? (sensor 1 on?, 500 msec. passed since after S1805 on? Continue with index No.A)
E D	Chucking off complete? (S1801 on? Continue with index No.E)
E E	Chucking off maintenance (Continue with index No.B)
E 10	Chucking maintenance (End. Continue with index No.3 or No.7)

TABLE 10 : POWER OFF PROCESSING

8. Mechanism mode

While the power is off, hold down the STOP and ENTER CATEGORY-SUB keys. Then press the ENTER CATEGORY-MAIN key and turn power on within one second. Immediately the mechanism service mode is activated and the following operations are performed automatically. (Items 1 through 11 below are omitted if a disc is loaded in disctable No. 22.)

0. Mechanism initialization
1. Disctable rotates (No. 22 moves to the front)
   - · Disctable drive motor control check
   - · Disctable positioning photo sensor on/off check
   - · Shutter engage switch (exterior section) check
2. Shutter opens
   - · Shutter drive motor control check
   - · Shutter open complete switch on check
   - · Shutter close complete switch off check
3. Disc received (Disc loaded in disctable)
   - · Sensors 2 - 7 on/off check
   - · Front kick-out switch on check
   - · Front loading motor control check

4. Shutter closes
   - · Shutter drive motor control check
   - · Shutter close complete switch on check
   - · Shutter open complete switch off check
5. Disctable rotates (No. 22 moves to the base mechanism)
   - · Disctable drive motor control check
   - · Disctable positioning photo sensor on/off check
6. Chucking off
   - · Chuck motor control check
   - · Chuck off complete switch on check
   - · Chuck on complete switch off check
7. Disc moves to the base mechanism
   - · Base mechanism side loading motor control check
   - · Sensor 1 on/off check
   - · Base mechanism side kick-out switch off check
8. Chucking on
   - · Chuck motor control check
   - · Chuck on complete switch on check
   - · Chuck off complete switch off check
9. Chucking off
   - · Chuck motor control check
   - · Chuck off complete switch on check
   - · Chuck on complete switch off check
10. Disc loaded in disctable
    - · Front loading motor control check
    - · Sensor 1 on/off check
    - · Base mechanism side kick-out switch on check
11. Chucking on
    - · Chuck motor control check
    - · Chuck on complete switch on check
    - · Chuck off complete switch off check
12. Disctable rotates (No. 22 moves to the front)
    - · Disctable drive motor control check
    - · Disctable positioning photo sensor on/off check
13. Shutter opens
    - · Shutter drive motor control check
    - · Shutter open complete switch on check
    - · Shutter close complete switch off check
14. Disc ejected
    - · Sensors 2 - 7 on/off check
    - · Front kick-out switch off check
    - · Front loading motor control check
15. Disc removed
    - · Sensors 5 and 6 on/off check
16. Shutter closes
    - · Shutter drive motor control check
    - · Shutter close complete switch on check
    - · Shutter open complete switch off check

SERVICE MODE (CD)

After operations 0 through 16 are completed, "POWER ON" and "22 NO DISC" are displayed if there are no errors. Pressing the Stop key after this terminates the service mode and switches back to the normal mode.

If an error occurs during one of steps 0 through 16, the mechanism halts and one of the following codes is displayed in the track no., index no. and time indicator sections of the display. Pressing the Power key after this terminates the service mode and switches to the normal mode (in power-off status).

DISPLAY	OPERATION
F 0	Disctable rotation
F 1	Specified disc detection complete? (Disc No. 22 moves to the front)
F 2	Photo sensor check (Position detect fine adjustment)
F 3	Disctable position redetection (Position detect fine adjustment)
F 4	Shutter open complete? (S1809 on?)
F 5	Wait for disc insertion (sensor 5 or sensor 6 off?)
F 6	Disc loading start OK? (Sensors 2, 3, 4 and 7 off?)
F 7	Disc loading in progress (Sensors 2 - 7 on?)
F 8	Disc loading complete? (500 msec. standby after index No. =7)
F 9	Shutter close complete? (S1808 on?)
F A	Specified disc detection complete? (Disc No. 22 moves to base mechanism position)
F B	Photo sensor check (Position detect fine adjustment)
F C	Disctable position redetection (Position detect fine adjustment)
F D	Chucking off complete? (S1801 on?)
F E	Maintenance after index No. D
F 10	Disk kick-out OK? (S1804 off, sensor 1 off?)
F 11	Disc extraction complete? (sensor 1 on?)
F 12	Chucking start OK? (250 msec. standby after index No. = 11)
F 13	Disc chucking complete? (S1802 on?)
F 14	Chucking off complete? (S1801 on?)
F 15	Maintenance after index No. = 14
F 16	Disc loading start? (Sensor 1 off, S1804 on?)
F 17	Disc loading in progress (Sensor 1 on?)
F 18	Disc loading complete? (500 msec. standby after index No. = 17)
F 19	Chucking complete? (S1802)

Index no. indications 29 - 36 are mechanism initial operations.

DISPLAY	OPERATION
F 1A	Specified disc detection complete? (Disc No. 22 moves to the front)
F 1B	Photo sensor check (Position detect fine adjustment)
F 1C	Disctable position redetection (Position detect fine adjustment)
F 1D	Shutter open complete? (S1809 on?)
F 1E	Disc eject start (Sensors 2 - 7 off?)
F 1F	Disc eject complete? (Sensors 2, 3, 4 and 7 on?)
F 20	Disc extracted? (sensors 2 - 7 on?)
F 21	Shutter close start
F 22	Shutter closed (S1808 on?)
F 23	Maintenance after index No. = 22
F 24	Front kick-out switch on? (S1805 on?)
F 25	Front kick-out maintenance
F 26	Maintenance after index No. = 4
F 27	Maintenance after index No. = 19
F 28	Maintenance after index No. = 1D
F 29	Chucking off start
F 2A	Chucking off complete? (S1801 on?)
F 2B	Maintenance after index No. = 2A
F 2C	Disc loading in progress (Sensor 1 on, S1804 on?)
F 2D	Disc loading complete? (500 msec. standby after index No. = 2C)
F 2E	Chucking complete? (S1802 on?)
F 2F	Maintenance after index No. = 2E
F 30	Shutter close complete? (S1808 on?)
F 31	Shutter close maintenance processing
F 32	Front kick-out switch on? (S1805 on?)
F 33	Disctable rotation start
F 34	Initial position detection complete? (Disctable rotation)
F 35	Photo sensor check (Position detect fine adjustment)
F 36	Disctable position redetection (Position detect fine adjustment)

TABLE 11 : Error indications during the mechanism mode (Track + Index No. part)

DISPLAY	OPERATION
E 1	Shutter motor
E 2	Front loading motor
E 3	Disctable motor
E 4	Play loading motor
E 5	Chucking motor

TABLE 12 : Error indications during the mechanism mode Time indicator part (minutes)

DISPLAY	OPERATION
E 1	Shutter open complete switch (S1809)
E 2	Shutter close complete switch (S1808)
E 3	Kick-out switch (front side) (S1805)
E 4	Initial reset switch (S1807)
E 5	Chuck on complete switch (S1802)
E 6	Chuck off complete switch (S1801)
E 7	Kick-out switch (base mechanism side) (S1804)
E 8	Sensors 2, 3, 4 and 7
E 9	Sensors 2, 3, 4, 5, 6 and 7
E A	Sensors 5 and 6
E B	Sensor 1
E C	Disctable position detection sensor
E D	Shutter engage switch (S1730)

TABLE 13 : Error indications during the mechanism mode Time indicator part (seconds)

SERVICE MODE (CD)

- **Mechanism error determination**

  If the indication "M-Error" appears in the scroll display, a problem has occurred controlling the mechanism. Turn the power switch off and perform the mechanism mode processing aforesaid page. If it is not possible to pinpoint the problem using the service mode, perform the following operation. This will enable you to determine the control status in which the problem occurred.

  When turning the power on, hold down the STOP and CATEGORY-SUB keys and press the 1 key (on the numeric keyboard) within one second. The mechanism error determination mode is activated and error data is displayed in the track No. and index No. sections of the display. (The meaning of the codes is the same as in the mechanism aging mode.) Press the Stop key to return to the normal mode.

9. Demo Indication mode

Press the STOP key and 2 of DISC SELECT key on the unit to enter this mode.

SERVICE MODE (TUNER & AMPLIFIER)

1. Activating the service mode

- While holding down the TAPE key, power on the unit. This puts the unit into service mode entry status. Then, pressing one of the following keys within one second activates the associated service mode.

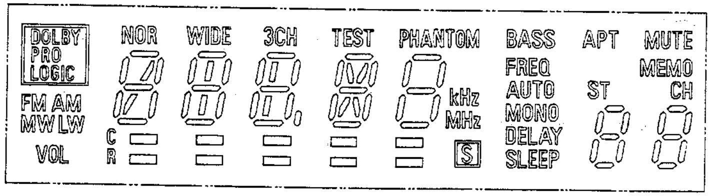
(1) Amplifier service mode

- Pressing the VIDEO key causes the unit to enter the amplifier display/key test service mode.
- DIRECT IN key Switches the display between all segments lit and all segments out status. After extinguishing all segments using this key, pressing keys causes the corresponding segments to light.
- This mode is released when the power is turned off.

Amplifier display/key test service mode

KEY	DISPLAY
TAPE (FUNCTION)	TAPE
CD (FUNCTION)	CD
TUNER (FUNCTION)	TU
PHONO (FUNCTION)	PHONO
VIDEO (FUNCTION)	VIDEO
DYNAMIC BASS	BASS
MUTE	MUTE
ON / OFF (DOLBY)	DOLBY PRO LOGIC
MODE (DOLBY)	NOR / WIDE / 3CH / PHANTOM
TEST / TONE	TEST
TUNING UP	DELAY
TUNING DOWN	S
CH / FREQ	CH / FREQ / Channel Display (2 Digit)

KEY	DISPLAY
MEMORY	MEMO / APT
SLEEP	SLEEP
AUTO / MANU	AUTO / MONO / ST
BAND	FM / MW / AM / LW / kHz / MHz
0	0 0 0, 0 0
1	1 1 1, 1 0
2	2 2 2, 2 0
3	3 3 3, 3 0
4	4 4 4, 4 0
5	5 5 5, 5 5
6	6 6 6, 6 5
7	7 7 7, 7 5
8	8 8 8, 8 5
9	9 9 9, 9 5



SERVICE MODE (TUNER & AMPLIFIER)

(2) Tuner service mode

- Pressing the TUNER key causes the unit to enter the tuner service mode.
- Pressing the DYNAMIC-BASS key when the unit is in the tuner service mode causes the following operations to take place.
  1) Auto station select operation takes place, beginning from the frequency three steps above the present reception frequency and working downward.
  2) If a signal from a broadcast station is received, and the frequency is the same as the starting frequency, operation 3. takes place. If it is a different frequency, station select operation stops. If no receivable broadcast station is found, station select operation continues.
  3) Auto station select operation takes place, beginning from the frequency three steps below the present reception frequency and working upward.
  4) If a signal is received, station select operation stops. If no receivable broadcast station is found, station select operation continues.
- The service mode is canceled by powering off the unit.

2. Micro Processor Port Test (IC251)

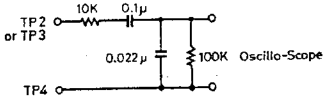
- This mode is activated by bringing pin 82 to Vdd level.
- The out pins of the groups are connected to the corresponding input pins by diode or.
- When all out pins are low level, any group for which the input pin is high level is experiencing some sort of malfunction with its input and output pins. The input pin numbers for the groups are displayed in this case.
- Each pin of each group goes high every 3.91 mS. Finally , a test takes place. (If differential rounding continues to this point for any waveform, it is judged unacceptable.)
- If there is no high level input applied to the input pin, the out pin number is displayed and the unit does not continue with the next test step (unacceptable).
- The indication "00" appears if everything is okay.
- All fluorescent segments go out if power input is interrupted.

Group	Out Pin Name	Pin	Port	Input Pin & Port	
1	DBPL01 P	12	P100	57	P63
	DBPL02 P	13	P101		
	DB3PN1 P	14	P102		
	DB3PN2 P	15	P103		
	SCRL1 P	16	P110		
	SCRL2 P	17	P111		
	FUNCT P	18	P112		
2	SPRLY P	60	P60	78	P13
	PORLY P	59	P61		
	ST4094 P	56	P70		
	DA4094 P	55	P71		
	CE7536 P	54	P72		
	CK4094 P	53	P73		
	TAPEL P	52	P80		
3	TMUTE P	68	P41	79	P12
	AUTO P	67	P42		
	MONO P	66	P43		
	MUTE P	64	P50		
	AMUTE P	63	P51		
	SURR P	62	P52		
	BXPND P	61	P53		
4	VOLIND P	77	P20	80	P11
	VOLDN P	74	P22		
	VOLUP P	75	P23		
	TPOWER P	73	P30		
	TCE P	72	P31		
	TCLK P	71	P32		
	TDATA P	70	P33		

CD ADJUSTMENT

Electrical Adjustment

So far we have presented explanations regarding compact disc player handling, notes prior to repair, handling the pick-up and disassembly of the unit. Be sure to carefully read these instructions before making any adjustments.



BAND PASS FILTER

Preparations for Adjustments

Measuring instruments, tools and filter

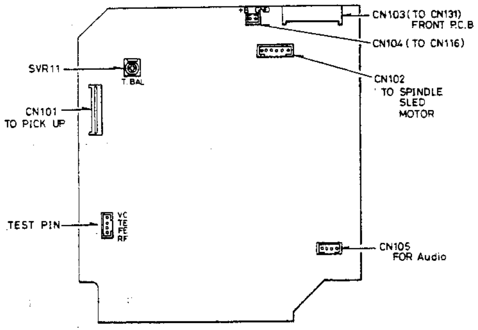
(1) Test disc. : YEDS 18 (Sony)
(2) Oscilloscope : SS5711 (10MHz or dual phenomenon)
or Memory scope : DSS6521 (Storage scope)
(3) Digital voltmeter (Input impedance 1M ohm or more)
(4) AF Oscillator (400Hz, 300mV RMS)
(5) Frequency Counter (5MHz ; or more)
(6) Screw drivers (no metallic) for adjustments
(7) Band Pass Filter
(8) AC Voltage Meter

Notes :a. The adjustments can be using the equipment produced by other manufactures provided that the performance of that equipment corresponds to that of the above listed models.
b. Use a 10 : 1 probe for observing signals on the oscilloscope and storage scope.
c. Test disc is subject change without notice.

1. Initial set up

Set the SVR11 at its initial position of adjustment controls as shown in figure of right side.

SVR11
INITIAL SET
(MECHANICAL CENTER)

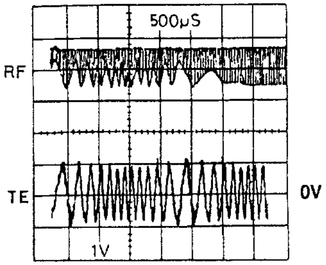


2. Specifications (Service mode entry)

To entry any service mode, first simultaneously press the STOP and ENTER CATEGORY-SUB buttons. This accesses the service mode entry state. Now press one of the button to enter a service mode. As the service mode entry state is discontinued after 1second elapses, the system will enter a service mode only if the next button is pressed within 1 second.

3. Tracking Balance (SVR11)

1. Load the test disc.
2. Connect the oscilloscope to TE(Tracking Error) and VC(Voltage Center) in test pin .
3. Enter this mode by pressing the PLAY/PAUSE button during the service mode entry state. (Service mode = Tracking Balance Adjustment mode = See service mode)
4. Pressing the PLAY / PAUSE button.
5. Adjust SVR11 so that the TE signal waveform on the oscilloscope is vertically symmetrical relative to VC. (See figure of right side)
   During playing pressing the MEMORY button turn on the tracking balance adjust state, for playing press the PLAY / PAUSE button (tracking servo off state).
6. Press the STOP button to exit this mode and return to the normal mode.
7. Take out the test disc.



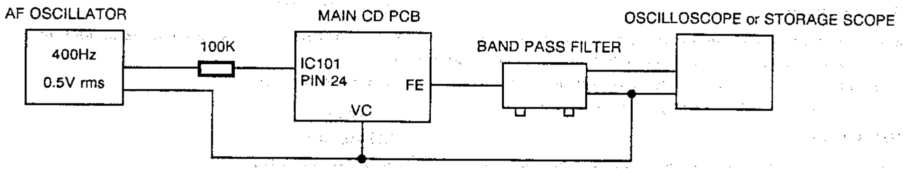
If this adjustment is imperfect, become run away the sled motor (Pickup sending motor), inferior playability.

CD ADJUSTMENT

4. Focus Gain Confirmation

1. Connect the storage scope to F.E : Focus Error (Test-pin) through the Band pass filter. (See BPF Figure)
2. Turn on the power of the unit.
3. Playback the test disc.
4. Set the output of AF oscillator to 400Hz, 0.5V rms and connect to pin 24 (IC101) through the resistor : 100k ohms.
5. Confirm so that the voltage of the F.E signal waveform on the storage scope is 0.5V p-p±3dB by through BPF.

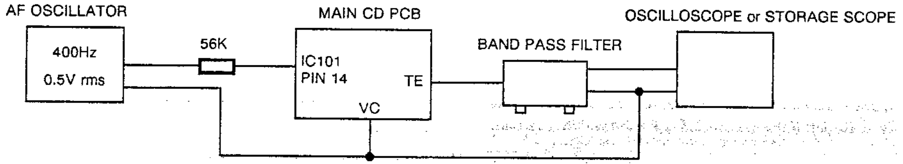
- If this CONFIRMATION is imperfect, become weak the mechanical shock, inferior playability, and can not playback the Disc.


AF OSCILLATOR
400Hz
0.5V rms
100K
MAIN CD PCB
IC101
PIN 24
FE
VC
BAND PASS FILTER
OSCILLOSCOPE or STORAGE SCOPE

5. Tracking Gain Confirmation

1. Connect the storage scope to T.E : Tracking Error (Test-pin) through the Band pass filter. (See BPF Figure).
2. Turn on the power of the unit.
3. playback the test disc.
4. Set the output of AF oscillator to 400Hz, 0.5V rms and connect to pin 14 (IC101) through resistor 56k ohms.
5. Confirm so that the voltage of T.E signal waveform on the storage scope is 0.5V p-p±3dB by through BPF.

- If this CONFIRMATION is imperfect, become weak the mechanical shock, inferior playability, and can not playback the Disc.


AF OSCILLATOR
400Hz
0.5V rms
56K
MAIN CD PCB
IC101
PIN 14
TE
VC
BAND PASS FILTER
OSCILLOSCOPE or STORAGE SCOPE

TUNER ADJUSTMENT

- Use a plastic screwdriver for adjustment.
- Adjust the intermediate frequency of AM and FM to the frequency of ceramic filter.

SG RF Level : 75 ohm Open Voltage dBμV

1. FM BAND

Antenna : 75ohm Un-balanced (DIRECT), Modulation : 1kHz, Dev. : ±22.5kHz(MONO) · ±22.5kHz(MAIN) · ±6.75kHz(PILOT)

Step	Items	Tuning Frequency	Input Condition		Output Condition		Parts	Standards
			Measure	Input	Measure	Output		
1	COVER	87.5MHz	------	------	Digital Voltmeter	TP202(H) TP207(E)	------	1.2~1.7V
		108.0MHz					------	Confirm ≤8.5V (about 7.8V)
2	IF(0V)	98.0MHz	FM SG (66dBμV)	FM ANT TERMINAL	Digital Voltmeter	TP203 TP204	T2202	0±0.05V
3	VCO	98.0MHz	FM SG (66dBμV)	FM ANT TERMINAL	Frequency Counter	TP206(H) TP207(E)	SVR23	#19KHz±50Hz
4	SEPARATION	98.0MHz	FM SG (66dBμV) Set to EXT(STEREO)	FM ANT TERMINAL	VTVM Oscilloscope	TP233(L) TP234(R) TP235(E)	------	Confirm stereo separation within near the specification.
5	STEREO SENSITIVITY	98.0MHz	FM SG (66dBμV) Set to EXT(STEREO)	FM ANT TERMINAL	------	------	------	Confirm stereo indicator light up within near the specification.

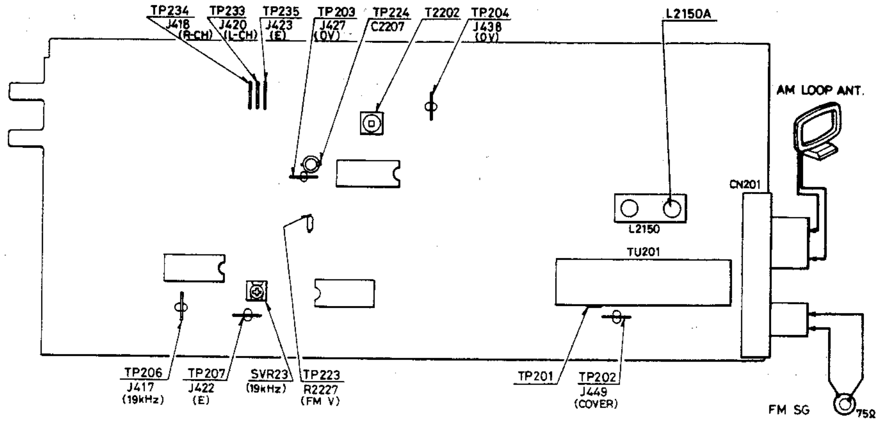
: Adjust in the modulation off Tuner Mode : AUTO STEREO

2. AM BAND

Antenna : IRE Loop, Modulation : 1kHz 30% SG RF Level : 75 ohm Open Voltage dBμV

Step	Items	Tuning Frequency	Input Condition		Output Condition		Parts	Standards
			Measure	Input	Measure	Output		
1	COVER	522kHz	------	------	Digital Voltmeter	TP202(H) TP207(E)	------	Confirm 1.1 ~ 1.5V
		1611kHz					------	Confirm ≤8.5V (about 7.7V)
2	TRACKING	603kHz	AM SG (about 80dBμV)	LOOP ANT	VTVM Oscilloscope	TP233(L) TP234(R) TP235(E)	------	Confirm to near the effective sensitivity.
		1404kHz					------	
3	STATION DTECTION	999kHz	AM SG	LOOP ANT	------	------	------	Confirm auto tuning stops at within near the specification.

3. Parts location


TP234
J418
(R-CH)
TP233
J420
(L-CH)
TP235
J423
(E)
TP203
J427
(0V)
TP224
C2207
T2202
TP204
J438
(0V)
L2150A
AM LOOP ANT.
CN201
L2150
TU201
TP206
J417
(19kHz)
TP207
J422
(E)
SVR23
(19kHz)
TP223
R2227
(FM V)
TP201
TP202
J449
(COVER)
FM SG
75Ω

TAPE DECK ADJUSTMENT

1. Amplifier Adjustment

	ITEM	DECK	TEST TAPE	INPUT	DOLBY SW	OUTPUT	ADJUST POINT	REMARKS
1	Head Azimuth	DECK 1 DECK 2	VTT738	-	OFF	TAPE OUT	Azimuth Screw	Adjust so as 10kHz output become maximum.
2	Playback Level	DECK 1 DECK 2	TCC130	-	OFF	TAPE OUT	SVR30 (L-ch) SVR31 (R-ch) SVR32 (L-ch) SVR33 (R-ch)	Adjust so as TAPE OUT output become 0.58mV.
3	Rec / Play Level	DECK 1	AC224	1kHz -15dB	OFF	TAPE OUT	SVR34 (L-ch) SVR35 (R-ch)	Adjust SVR so as Rec / Play output become 0.40V.
4	Rec / Play Frequency	DECK 2	AC224	1kHz /10kHz -35dB	OFF	TAPE OUT	SVR36 (L-ch) SVR37 (R-ch)	R/P signal, set frequency characteristic 1kHz output to 0dB. Adjust SVR so as 10kHz output become ± 1dB.

Note. 1. During alignment, measurement Beat cancel SW is at 1 condition fundamentally, confirm Rec/Play frequency characteristic, dolby effect also by 2 condition,

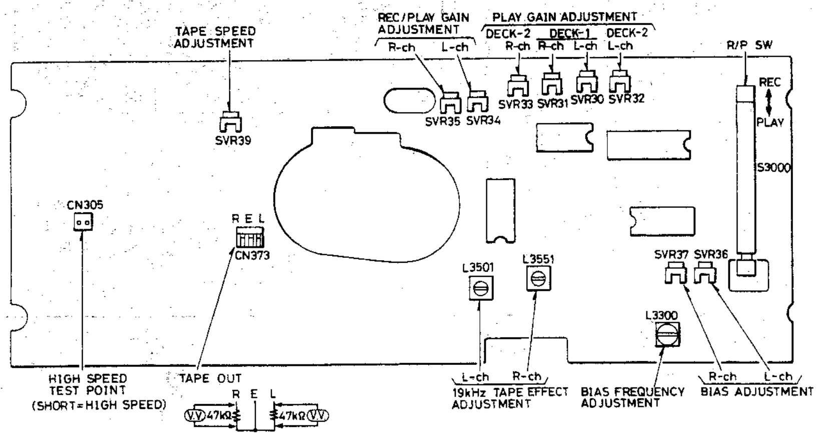
2. Tape Speed Adjustment

Step	Speed	Deck	Test Tape	SVR	Tape Counter	Remarks
1	Normal	Deck 1	MTT-111N (3000Hz)	SVR39	3,000 ± 10Hz	
2	High	Deck 1	TCW-211 (1500Hz)	---	3,000Hz ± 10%	

Connect the Frequency Counter to LINE OUT.

1. Insert the test tape(MTT-111N, etc. : 3,000Hz) into the DECK 1. Note : Set the test tape near the tape end.
2. Press the PLAY button.
3. Adjust SVR39 so that a frequency counter reading of 3,000 ±10Hz is obtained.
4. Press the STOP button, and eject the test tape.
5. Insert the test tape (TCW-211, etc. : 1,500Hz) into the DECK 2.
6. Insert the tape (C-60 Blank tape) into the DECK 1.
7. Press the REC button of DECK 1 and press the PLAY button of DECK 2.
   Both mechanism become high speed dubbing.
8. Confirm that a frequency counter reading of 3,000Hz ±10% is obtained.
9. Press the STOP button and eject the each tape.

3. Parts Location

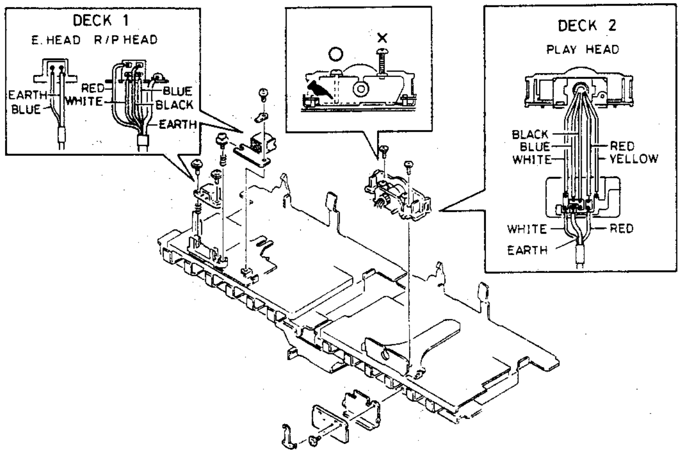

TAPE SPEED ADJUSTMENT
SVR39
REC/PLAY GAIN ADJUSTMENT
R-ch
L-ch
SVR35 SVR34
PLAY GAIN ADJUSTMENT
DECK-2 R-ch
DECK-1 R-ch L-ch
DECK-2 L-ch
SVR33 SVR31 SVR30 SVR32
R/P SW
REC
PLAY
S3000
CN305
R E L
CN373
L3501
L3551
L3300
SVR37 SVR36
HIGH SPEED TEST POINT (SHORT=HIGH SPEED)
TAPE OUT
R E L
V.V 47kΩ
47kΩ V.V
L-ch R-ch
19kHz TAPE EFFECT ADJUSTMENT
BIAS FREQUENCY ADJUSTMENT
R-ch L-ch
BIAS ADJUSTMENT

TAPE DECK TORQUE & REPLACEMENT

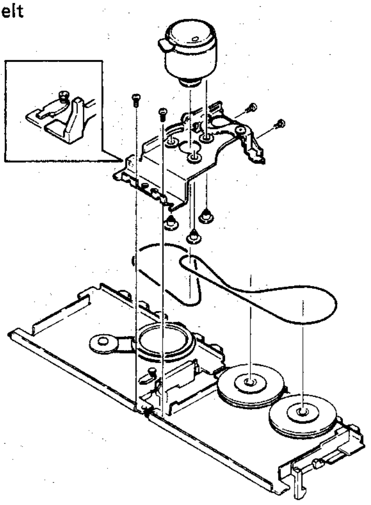
4. Torque Measurements

ITEM	TAKE-UP TORQUE	BACK TENTION	PULLEY TENTION
Test cassette	PLAY:TW2111A F.F/REW:TW2231	PLAY:TW2111A F.F/REW:TW2231	Driving power cassette: TW-2412(PLAY) TW-2422(REV. PLAY)
PLAY	27~60gr.cm	2~8gr.cm	
F.FWD	55~140gr.cm	-	>60g
REW	55~140gr.cm	-	

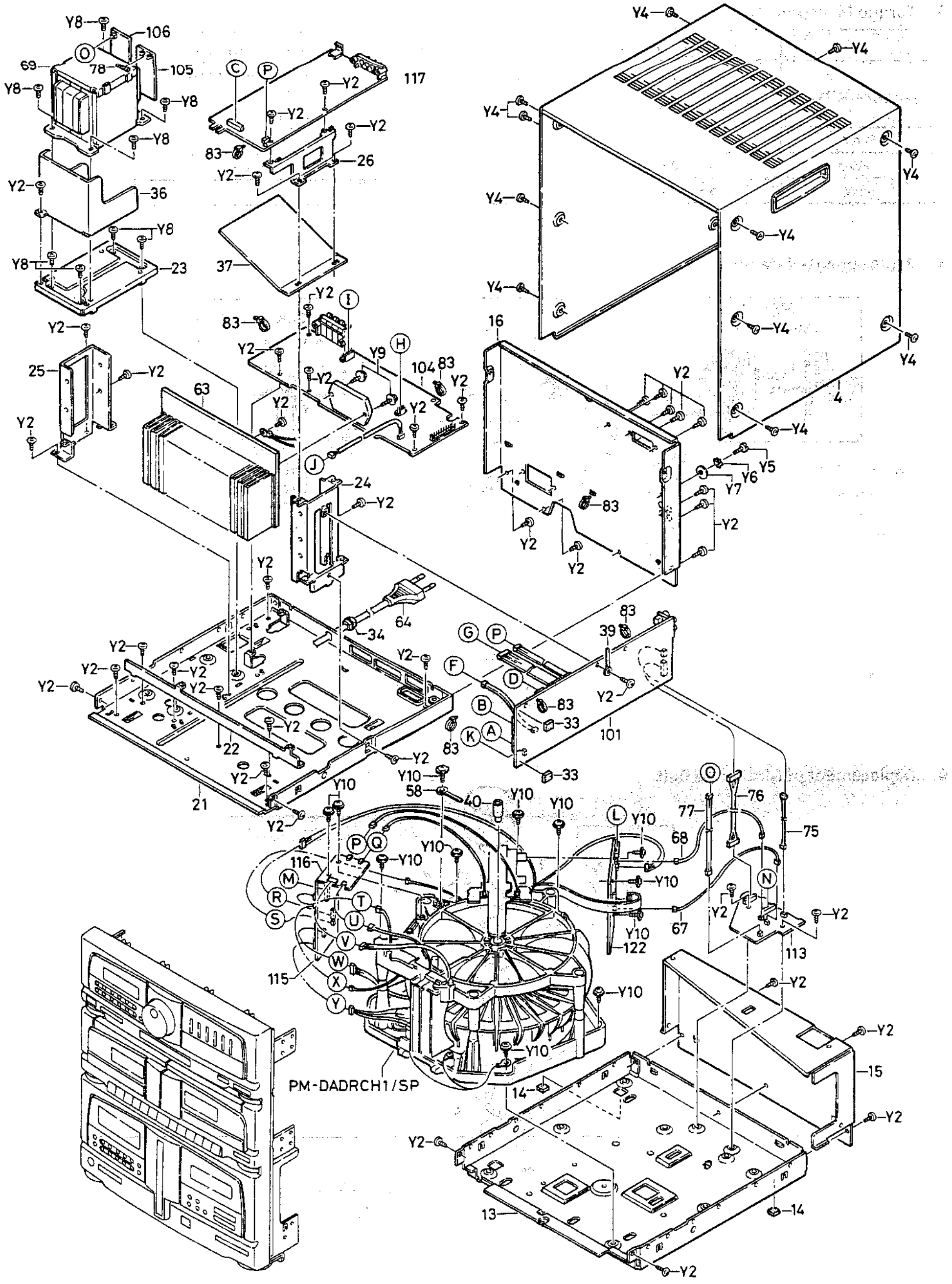
5. Replacement of Head


DECK 1
E. HEAD
R/P HEAD
EARTH
BLUE
RED
WHITE
BLUE
BLACK
EARTH
DECK 2
PLAY HEAD
BLACK
BLUE
WHITE
RED
YELLOW
WHITE
RED
EARTH

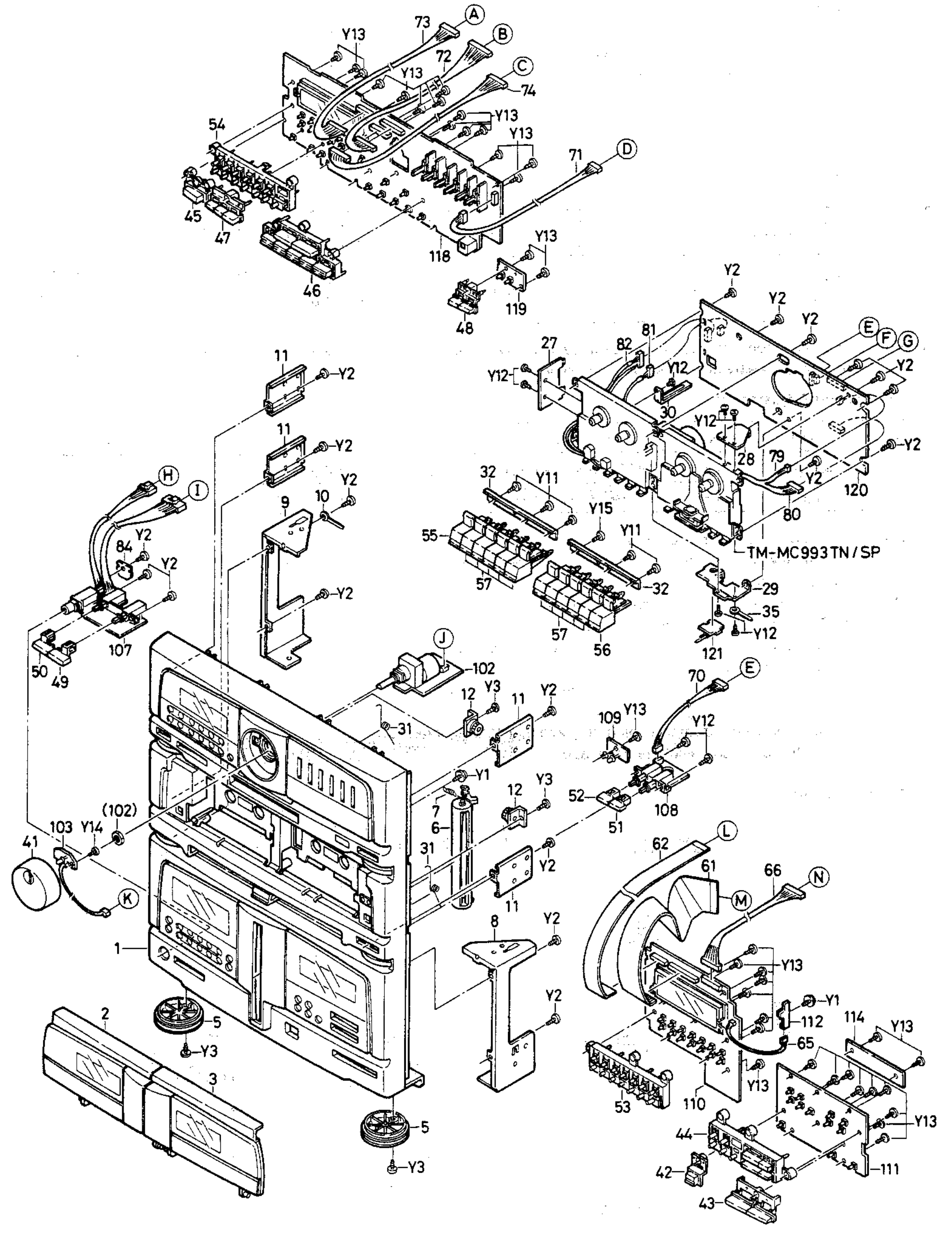
6. Replacement of Motor and Belt



EXPLODED VIEW (CABINET)


Y8
106
O
69
78
105
Y8
Y8
Y2
36
Y8
Y8
23
C
P
Y2
117
83
26
37
I
Y9
H
104
83
25
63
J
24
64
34
22
21
Y4
16
4
Y5
Y6
Y7
83
Y2
39
G
P
F
D
B
A
K
83
33
33
101
Y10
58
40
77
76
75
68
67
L
Q
116
R
M
S
T
U
V
W
X
Y
115
122
113
N
15
14
13
14
PM-DADRCH1/SP

EXPLODED VIEW (CHASSIS)


73
A
B
Y13
72
C
74
54
45
47
46
71
D
118
119
48
27
Y12
82
81
30
28
79
120
80
E
F
G
Y2
TM-MC993TN/SP
32
Y11
Y15
55
57
56
29
35
Y12
121
11
9
10
84
H
I
107
50
49
J
102
12
Y3
31
Y1
7
6
109
70
108
52
51
41
103
Y14
(102)
K
1
2
3
5
8
62
L
61
66
M
N
65
112
114
53
110
44
42
43
111

PARTS LIST

PRODUCT SAFETY NOTICE

Each precaution in this manual should be followed during servicing. Components identified with the IEC symbol ⚠ in the parts list and the schematic diagram designate components in which safety can be of special significance. When replacing a component identified ⚠, use only the replacement parts designated, or parts with the same ratings of resistance, wattage or voltage that are designated in the parts list in this manual. Leakage-current or resistance measurements must be made to determine that exposed parts are acceptably insulated from the supply circuit before returning the product to the customer.

CAUTION: Regular type resistors and capacitors are not listed. To know those values, refer to the schematic diagram.

N.S.P : Not available as service parts.

PACKING & ACCESSORIES

Ref. No.	Part No.	Description
	614 256 7432	INNER CARTON
	614 256 7456	PAD,TOP
	614 256 7463	PAD,BOTTOM
	614 246 0443	INNER POLYE COVER,INST
	614 256 7449	SHEET,SET
	614 231 6832	LABEL,SAFETY,LASER CLASS
	614 188 3298	GUARANTEE CARD
	614 256 7487	INSTRUCTION MANUAL
	614 023 7344	ANTENNA
or	614 229 4635	ANTENNA
	614 234 5511	LOOP ANTENNA

REMOCON (RB-REM-993)

Ref. No.	Part No.	Description
	614 256 3021	ASSY,REMOCON
	614 256 3007	LID,BATTERY
	614 256 3106	POLYE COVER,REMOCON

CABINET

Ref. No.	Part No.	Description
1	614 256 8842	ASSY,PANEL,FRONT
2	614 251 1503	ASSY,LID,CASSETTE
3	614 256 8828	ASSY,LID,CASSETTE
4	614 251 2968	ASSY,CABINET
5	614 251 2999	ASSY,FOOT
6	614 248 9178	DOOR,CD DOOR
7	614 249 4059	SPRING,TENS,DOOR OPEN
8	614 250 5410	BRACKET-M,RIGHT SIDE
9	614 250 5427	BRACKET-M,LEFT SIDE
10	614 130 0382	LUG,LEAD FIX
11	614 250 5434	BRACKET-M,FRONT-CABINET
12	614 069 0385	GEAR ASSY
13	614 250 4765	CABINET,BOTTOM,CD BOTTOM
14	614 213 8748	STAND
15	614 250 0446	PANEL,REAR,CD REAR
16	614 256 7227	PANEL,REAR,AMP REAR

CHASSIS

Ref. No.	Part No.	Description
21	614 250 5342	CHASSIS,AMP BOTTOM
22	614 250 5380	BRACKET-M,AMP FRONT
23	614 250 5373	BRACKET-M,TRANS
24	614 250 5397	BRACKET-M,HEAT SINK
25	614 250 5403	BRACKET-M,HEAT SINK
26	614 250 5359	BRACKET-M,TU PCB
27	614 216 9230	BRACKET-E,DECK MECHA PCB SIDE
28	614 216 9247	BRACKET-E,DECK MECHA PCB CENTER
29	614 250 0736	BRACKET-E,DECK MECHA PCB MUTE
30	614 250 0798	SPRING,PLATE,REC
31	614 218 0051	SPRING,WIRE,LID CASSETTE
32	614 194 9239	BRACKET,MECHA KNOB
33	614 106 4215	STAND,PRE PCB
34	614 129 1901	FIXER,AC CORD
35	614 129 9341	LUG,DECK MECHA LEAD FIX
36	614 254 6413	SHIELD,FOR HUM NOISE
37	614 254 7441	SHIELD,FOR HEAT
39	614 130 0382	LUG,VOLUME LEAD FIX
40	614 256 6824	SPACER,CD MECHA TOP
41	614 251 1558	ASSY,KNOB,ROTARY
42	614 250 5199	BUTTON,CD EJECT
43	614 250 5205	BUTTON,CD SKIP
44	614 250 5212	BUTTON,CD PLAY
45	614 250 5229	BUTTON,POWER/STANDBY
46	614 250 5236	BUTTON,FUNCTION
47	614 250 5243	BUTTON,ST/MONO
48	614 250 5250	BUTTON,MUTE/DYNAMIC
49	614 250 5274	BUTTON,SPEAKER-B
50	614 251 2715	BUTTON,SPEAKER-A
51	614 250 5281	BUTTON,DUB SPEED
52	614 251 2722	BUTTON,DOLBY NR
53	614 250 5298	BUTTON,CD PRESET
54	614 250 5304	BUTTON,TU PRESET
55	614 250 5137	KNOB,LEVER,MECHA-L
56	614 250 5144	KNOB,LEVER,MECHA-R
57	614 250 5151	KNOB,LEVER,MECHA
58	614 129 9136	LUG,CD MECHA-WIRE FIX

FIXING PARTS

Ref. No.	Part No.	Description
Y1	412 003 1708	SPECIAL SCREW,DOOR SPRING, CD DOOR SW PCB FIX
Y2	411 021 6405	SCR S-TPG BIN 3X8
Y3	411 021 3503	SCR S-TPG BIN 3X10, ASSY FOOT,GEAR ASSY
Y4	411 021 6603	SCR S-TPG BIN 3X8, ASSY CABINET
Y5	411 148 3509	SCR S-TPG BIN 3X14,PHONE GND
Y6	411 008 0402	WASHER OUT TW 3,PHONE GND
Y7	411 105 9704	WASHER Z 3X10X1,PHONE GND
Y8	411 001 4209	SCR S-TPG BIN 4X8,TRANS FIX, BRACKET(23)FIX
Y9	411 020 9506	SCR S-TPG BRZ+FLG 3X16, POWER IC-HEATSINK
Y10	411 020 9902	SCR S-TPG BRZ+FLG 3X8, CD MECHA FIX,BASE-PCB FIX
Y11	411 021 3107	SCR S-TPG BIN 2.6X8, BRACKET(32)FIX
Y12	411 028 2905	SCR S-TPG PAN 2X4,
Y13	411 021 3107	SCR S-TPG BIN 2.6X8
Y14	411 098 4700	SCR S-TPG BIN 2.3X8, VOLUME LED FIX
Y15	411 101 7407	SCR S-TPG FLT 2.6X10 BRAKET(32) FIX

PARTS LIST

ELECTRICAL PARTS

Ref. No.	Part No.	Description
61	614 249 8675	CORD,CD FRONT
62	614 249 8682	CORD,CD FRONT
63	614 244 9141	HEAT SINK
64	⚠614 023 3100	POWER CORD
or	⚠614 255 2513	POWER CORD
or	⚠614 023 3148	POWER CORD
or	⚠614 233 8971	POWER CORD
65	614 254 4488	ASSY,CONNECTOR-S,2P, CD-SHUTTER
66	614 254 4495	ASSY,CONNECTOR-S,13P, CD FRONT
67	614 253 5288	ASSY,CONNECTOR-S,4P,CD AUDIO
68	614 253 5271	ASSY,CONNECTOR-S,2P,CD DG
69	⚠614 256 7951	POWER TRANS,85X60 MAIN
70	614 253 7558	ASSY,CONNECTOR-S, DOLBY DUB PCB-DECK
71	614 254 6239	ASSY,CONNECTOR-S,FRONT-PRE
72	614 254 6260	ASSY,CONNECTOR-S,FRONT-PRE
73	614 254 6192	ASSY,CONNECTOR-S,FRONT-PRE
74	614 254 6253	ASSY,CONNECTOR-S,FRONT-TUNER
75	614 254 6215	ASSY,CONNECTOR-S,CD-PRE
76	614 254 6246	ASSY,CONNECTOR-S,CD-PRE
77	614 254 8202	ASSY,CONNECTOR-S
78	⚠423 016 7809	FUSE 250V 2A
79	614 249 4684	ASSY,CONNECTOR-S, TAPE SELECT SW LEAD
80	614 249 4691	ASSY,CONNECTOR-S, DECK MECHA LEAD
81	614 248 9086	ASSY,CONNECTOR-S,P HEAD
82	614 248 9093	ASSY,CONNECTOR-S, R/P AND E HEAD
83	614 129 4971	FIXER,LEAD FIX,FINAL
or	614 129 2496	FIXER,LEAD FIX,FINAL
84	614 256 7944	PCB,H.P STOPPER

PRE AMPLIFIER P.C.BOARD ASSY

Ref. No.	Part No.	Description
101	614 259 2076	ASSY,PCB,PRE
C4653	403 262 8607	DL-ELECT 0.047F Z 5.5V
CN447	614 244 0131	SOCKET,4P
CN448	614 254 6918	SOCKET,9P
CN449	614 211 3073	SOCKET,2P
CN470	614 017 2546	PLUG,3P
CN471	614 017 2621	PLUG,11P
CN472	614 242 6692	SOCKET,20P
CN476	614 254 5492	PLUG,12P
CN477	614 017 2669	PLUG,15P
CN479	614 020 6579	SOCKET,5P
CN480	614 017 2584	PLUG,7P
CN481	614 020 6562	SOCKET,4P
or	614 223 9223	SOCKET,4P
CN482	614 017 2539	PLUG,2P
CN483	614 020 6616	SOCKET,9P
or	614 223 9278	SOCKET,9P
CN484	614 020 6548	SOCKET,2P
or	614 223 9209	SOCKET,2P
CN489	614 249 8620	SOCKET,4P
D4580	407 051 6805	ZENER DIODE GZS5.1Z
or	407 053 6407	ZENER DIODE MTZ5.1C
IC472	409 109 5105	IC LC7821
IC479	409 018 4503	IC LA6458DS
IC480	409 018 4909	IC LA6458S
IC481	409 021 0400	IC LC4966
IC482	409 018 4909	IC LA6458S
IC483	409 114 4803	IC LB1641
IC486	409 018 4909	IC LA6458S
L4580	614 027 9214	CHOKE COIL
Q4501	405 012 2002	TR 2SC1815-GR
or	405 020 7204	TR 2SC945A-K
or	405 011 7503	TR 2SC1740-S
Q4502	405 000 3806	TR DTC114YS
Q4503	405 001 7001	TR 2SA1015-GR
Q4505	405 022 5505	TR 2SD1468-R
Q4601	405 012 2002	TR 2SC1815-GR
or	405 020 7204	TR 2SC945A-K
or	405 011 7503	TR 2SC1740-S
Q4602	405 001 7001	TR 2SA1015-GR
Q4605	405 022 5505	TR 2SD1468-R
R4580	⚠402 004 4303	FUSIBLE RES 10 J- 1/4W
S4501	614 221 8327	SWITCH,TACT

MAIN VOLUME P.C.BOARD ASSY

Ref. No.	Part No.	Description
102	614 259 2083	ASSY,PCB,VR
CN486	614 020 6579	SOCKET,5P
CN490	614 017 2102	PLUG,3P
VR469	614 249 9221	VR,ROTARY,100KOHM

VOLUME LED P.C.BOARD ASSY

Ref. No.	Part No.	Description
103	614 259 2090	ASSY,PCB,VR LED
CN485	614 254 6871	ASSY,CONNECTOR-S,2P
D4460	408 018 4506	LED SLZ-138C-20-T1

MAIN AMPLIFIER P.C.BOARD ASSY

Ref. No.	Part No.	Description
104	614 256 7708	ASSY,PCB,MAIN
	614 203 7362	HEAT SINK
	411 021 5705	SCR S-TPG BIN 3X6
	614 086 2164	COVER
	614 129 9082	LUG
C4704	403 057 3800	POLYESTER 0.1U M 50V
C4705	403 057 3800	POLYESTER 0.1U M 50V
C4721	403 086 2300	NP-ELECT 1U M 50V
C4724	403 057 1202	POLYESTER 0.10U M 50V
C4725	403 057 1202	POLYESTER 0.10U M 50V
C4804	403 057 3800	POLYESTER 0.1U M 50V
C4805	403 057 3800	POLYESTER 0.1U M 50V
C4821	403 086 2300	NP-ELECT 1U M 50V
C4824	403 057 1202	POLYESTER 0.10U M 50V
C4825	403 057 1202	POLYESTER 0.10U M 50V
C4905	404 029 3804	POLYPRO 0.022U M 200V
C4906	404 029 3804	POLYPRO 0.022U M 200V
C4907	403 057 1202	POLYESTER 0.01U M 50V
C4908	403 057 1202	POLYESTER 0.01U M 50V
C4916	403 086 8500	NP-ELECT 47U M 50V
C4922	⚠404 033 3401	CERAMIC 0.01U Z 400V
or	⚠404 033 3302	CERAMIC 0.01U M 400V
or	⚠404 000 1607	CERAMIC 0.01U F 400V
C4927	403 086 2300	NP-ELECT 1U M 50V
CN400	614 242 6616	PLUG,20P
CN406	614 248 7006	TERMINAL,8P
CN407	614 017 1471	PLUG,6P
CN408	614 017 1457	PLUG,4P
CN411	614 020 1253	SOCKET,6P

Ref. No.	Part No.	Description
CN420	614 020 1222	SOCKET,3P
CN421	614 020 1215	SOCKET,2P
CN450	614 254 5850	SOCKET,3P
D4701	407 005 4505	DIODE DS442X
or	407 013 7109	DIODE 1S2473
or	407 013 1701	DIODE 1S1588
D4801	407 005 4505	DIODE DS442X
or	407 013 7109	DIODE 1S2473
or	407 013 1701	DIODE 1S1588
D4902	407 053 6308	ZENER DIODE MTZ5.1B
D4903	407 053 6704	ZENER DIODE MTZ5.6B
D4904	407 005 4505	DIODE DS442X
or	407 013 7109	DIODE 1S2473
or	407 013 1701	DIODE 1S1588
D4905	⚠407 004 9105	DIODE DSF10C
or	⚠407 012 3300	DIODE 1SR35-200A
D4906	407 007 9904	DIODE GMA01
or	407 012 4406	DIODE 1SS133
or	407 012 5809	DIODE 1SS176
or	407 153 6119	DIODE 1SS119-041TD
D4908	407 051 7208	ZENER DIODE GZS6.2Y
or	407 053 7107	ZENER DIODE MTZ6.2B
D4911	407 005 4505	DIODE DS442X
or	407 013 7109	DIODE 1S2473
or	407 013 1701	DIODE 1S1588
D4912	407 007 9904	DIODE GMA01
or	407 012 4406	DIODE 1SS133
or	407 012 5809	DIODE 1SS176
or	407 153 6119	DIODE 1SS119-041TD
D4913	407 007 9904	DIODE GMA01
or	407 012 4406	DIODE 1SS133
or	407 012 5809	DIODE 1SS176
or	407 153 6119	DIODE 1SS119-041TD
D4914	407 005 4505	DIODE DS442X
or	407 013 7109	DIODE 1S2473
or	407 013 1701	DIODE 1S1588
D4915	⚠407 004 9105	DIODE DSF10C
or	⚠407 012 3300	DIODE 1SR35-200A
D4916	⚠407 004 9105	DIODE DSF10C
or	⚠407 012 3300	DIODE 1SR35-200A
D4917	⚠407 004 9105	DIODE DSF10C
or	⚠407 012 3300	DIODE 1SR35-200A
D4918	⚠407 004 9105	DIODE DSF10C
or	⚠407 012 3300	DIODE 1SR35-200A
D4919	⚠407 127 1505	DIODE RBV-602LF-A
D4920	⚠407 077 7800	DIODE RBV-402LF-A
D4922	⚠407 004 9105	DIODE DSF10C
or	⚠407 012 3300	DIODE 1SR35-200A
D4923	⚠407 004 9105	DIODE DSF10C
or	⚠407 012 3300	DIODE 1SR35-200A
D4924	⚠407 004 9105	DIODE DSF10C
or	⚠407 012 3300	DIODE 1SR35-200A
D4925	⚠407 004 9105	DIODE DSF10C
or	⚠407 012 3300	DIODE 1SR35-200A
D4926	407 007 9904	DIODE GMA01
or	407 012 4406	DIODE 1SS133
or	407 153 6119	DIODE 1SS119-041TD
D4927	407 007 9904	DIODE GMA01
or	407 012 4406	DIODE 1SS133
or	407 012 5809	DIODE 1SS176
or	407 153 6119	DIODE 1SS119-041TD
D4928	407 051 6102	ZENER DIODE GZS33Y
D4929	407 050 5502	ZENER DIODE GZA5.6Y
D4930	407 005 4505	DIODE DS442X
or	407 013 7109	DIODE 1S2473
or	407 013 1701	DIODE 1S1588

Ref. No.	Part No.	Description
D4932	407 007 9904	DIODE GMA01
or	407 012 4406	DIODE 1SS133
or	407 012 5809	DIODE 1SS176
or	407 153 6119	DIODE 1SS119-041TD
D4933	407 005 4505	DIODE DS442X
or	407 013 7109	DIODE 1S2473
or	407 013 1701	DIODE 1S1588
IC471	⚠409 274 0707	IC STK401-190
IC490	⚠409 078 1900	IC L7805ML
IC492	⚠409 078 1900	IC L7805ML
IC493	⚠409 131 3506	IC L79M12ML
IC494	⚠409 001 7603	IC AN7812F
or	⚠409 078 2402	IC L7812ML
or	⚠409 122 6202	IC NJM7812FA
or	⚠409 168 2107	IC UPC7812HF
or	⚠409 168 2107	IC UPC7812HF
IC495	⚠409 001 7603	IC AN7812F
or	⚠409 078 2402	IC L7812ML
or	⚠409 122 6202	IC NJM7812FA
or	⚠409 168 2107	IC UPC7812HF
IC496	⚠409 001 7603	IC AN7812F
or	⚠409 078 2402	IC L7812ML
or	⚠409 122 6202	IC NJM7812FA
L4701	614 202 1712	V.H.F COIL
L4801	614 202 1712	V.H.F COIL
L4901	614 257 2993	INDUCTOR,FERITE
PO490	⚠408 017 0707	TH PTH9M04BC471TS2F333
PT401	⚠614 257 5116	POWER TRANS
Q4701	405 022 5505	TR 2SD1468-R
Q4702	405 012 3900	TR 2SC1845-E
or	405 032 8107	TR 2SC1845-F
Q4801	405 022 5505	TR 2SD1468-R
Q4802	405 012 3900	TR 2SC1845-E
or	405 032 8107	TR 2SC1845-F
Q4901	405 012 3900	TR 2SC1845-E
or	405 032 8107	TR 2SC1845-F
Q4902	405 012 3900	TR 2SC1845-E
or	405 032 8107	TR 2SC1845-F
Q4903	405 124 4802	TR 2SA992-T
or	405 124 4901	TR 2SA992-T
Q4904	405 001 7001	TR 2SA1015-GR
Q4905	405 012 2002	TR 2SC1815-GR
or	405 020 7204	TR 2SC945A-K
or	405 011 7503	TR 2SC1740-S
Q4906	405 012 2002	TR 2SC1815-GR
or	405 020 7204	TR 2SC945A-K
or	405 011 7503	TR 2SC1740-S
Q4907	405 001 7001	TR 2SA1015-GR
Q4908	405 012 2002	TR 2SC1815-GR
or	405 020 7204	TR 2SC945A-K
or	405 011 7503	TR 2SC1740-S
Q4909	405 012 2002	TR 2SC1815-GR
or	405 020 7204	TR 2SC945A-K
or	405 011 7503	TR 2SC1740-S
Q4920	405 012 2002	TR 2SC1815-GR
or	405 020 7204	TR 2SC945A-K
or	405 011 7503	TR 2SC1740-S
Q4922	405 001 7001	TR 2SA1015-GR
Q4923	405 001 9302	TR 2SA1020-Y
Q4930	405 000 3806	TR DTC114YS
Q4999	405 012 2002	TR 2SC1815-GR
or	405 020 7204	TR 2SC945A-K
or	405 011 7503	TR 2SC1740-S
R4709	401 058 1108	OXIDE-MT 10 JA 1W
R4710	401 062 3907	OXIDE-MT 5.6 JA 1W
R4809	401 058 1108	OXIDE-MT 10 JA 1W
R4810	401 062 3907	OXIDE-MT 5.6 JA 1W

P.T PRIMARY P.C.BOARD ASSY

Ref. No.	Part No.	Description
R4909	⚠401 218 7902	CARBON 180 JB 1/4W
R4915	401 058 3706	OXIDE-MT 1K JA 1W
R4916	⚠401 218 7902	CARBON 180 JB 1/4W
R4950	⚠402 044 6701	RESISTOR 0.47 J- 1/2W
RE490	⚠614 242 7750	RELAY,POWER
RE491	614 242 7767	RELAY
WR401	614 017 8203	TERMINAL BOARD
WR402	614 017 8203	TERMINAL BOARD

P.T PRIMARY P.C.BOARD ASSY

Ref. No.	Part No.	Description
105	614 256 7715	ASSY,PCB,PT PRI
FPC01	614 208 4540	FUSE HOLDER
FPC02	614 208 4540	FUSE HOLDER

P.T SECONDARY P.C.BOARD ASSY

Ref. No.	Part No.	Description
106	614 256 7722	ASSY,PCB,PT SEC
CN413	614 020 1253	SOCKET,6P
CN423	614 017 2096	PLUG,2P
CN424	614 020 1215	SOCKET,2P
R4951	⚠402 044 6701	RESISTOR 0.47 J- 1/2W
R4952	⚠402 045 1309	RESISTOR 0.33 J- 1W

SPEAKER SWITCH P.C.BOARD ASSY

Ref. No.	Part No.	Description
107	614 256 7739	ASSY,PCB,SP SW
CN409	614 020 1253	SOCKET,6P
CN410	614 020 1239	SOCKET,4P
CN414	614 248 6962	SOCKET
CN451	614 254 8226	ASSY,CONNECTOR-S,6P
CN455	614 254 8219	ASSY,CONNECTOR-S,4P
R4732	401 061 3007	OXIDE-MT 330 JA 2W
R4832	401 061 3007	OXIDE-MT 330 JA 2W
S4901	614 252 3742	SWITCH,PUSH

DOLBY SWITCH P.C.BOARD ASSY

Ref. No.	Part No.	Description
108	614 256 7746	ASSY,PCB,DOLBY DUB.SW
CN309	614 035 4928	SOCKET,3P
or	614 237 9769	SOCKET,3P
CN328	614 220 2739	PLUG,6P
S3110	614 252 5005	SWITCH,PUSH

LED P.C.BOARD ASSY

Ref. No.	Part No.	Description
109	614 256 7753	ASSY,PCB,DIR LED
CN319	614 035 4928	SOCKET,3P
or	614 237 9769	SOCKET,3P
D3210	408 016 1101	LED SLZ-381C-15-T2
D3211	408 016 1101	LED SLZ-381C-15-T2

CD FRONT-1 P.C.BOARD ASSY

Ref. No.	Part No.	Description
110	614 256 9696	ASSY,PCB,FRONT-1,K-1
	614 228 4063	MOUNT-E, FL FIX
CN130	614 227 7836	SOCKET,32P

Ref. No.	Part No.	Description
CN131	614 240 8315	SOCKET,16P
CN132	614 035 4942	SOCKET,5P
CN133	614 035 4911	SOCKET,2P
CN134	614 017 3925	PLUG,13P
D1301	407 005 4505	DIODE DS442X
or	407 013 7109	DIODE 1S2473
or	407 013 1701	DIODE 1S1588
D1302	407 005 4505	DIODE DS442X
or	407 013 7109	DIODE 1S2473
or	407 013 1701	DIODE 1S1588
D1303	407 005 4505	DIODE DS442X
or	407 013 7109	DIODE 1S2473
or	407 013 1701	DIODE 1S1588
D1304	407 005 4505	DIODE DS442X
or	407 013 7109	DIODE 1S2473
or	407 013 1701	DIODE 1S1588
D1305	407 005 4505	DIODE DS442X
or	407 013 7109	DIODE 1S2473
or	407 013 1701	DIODE 1S1588
D1706	407 005 4505	DIODE DS442X
or	407 013 7109	DIODE 1S2473
or	407 013 1701	DIODE 1S1588
FL101	614 249 8651	FLUORESCENT TUBE
IC111	410 183 0306	IC CXP82432-103Q
IC112	409 283 6905	IC LE24C04S1
or	410 182 3100	IC ST24C04B1
or	410 177 3702	IC AT24C04-10PC
Q1301	405 000 4407	TR DTC124ES
Q1302	405 001 9302	TR 2SA1020-Y
Q1303	405 011 7503	TR 2SC1740-S
S1701	614 220 5655	SWITCH,TACT
S1702	614 220 5655	SWITCH,TACT
S1703	614 220 5655	SWITCH,TACT
S1704	614 220 5655	SWITCH,TACT
S1705	614 220 5655	SWITCH,TACT
S1706	614 220 5655	SWITCH,TACT
S1707	614 220 5655	SWITCH,TACT
S1708	614 220 5655	SWITCH,TACT
S1709	614 220 5655	SWITCH,TACT
S1710	614 220 5655	SWITCH,TACT
S1712	614 220 5655	SWITCH,TACT
S1713	614 220 5655	SWITCH,TACT
S1716	614 220 5655	SWITCH,TACT
S1717	614 220 5655	SWITCH,TACT
X1301	614 215 5561	RESONATOR,CERAM
or	614 215 5523	RESONATOR,CERAM

CD FRONT-2 P.C.BOARD ASSY

Ref. No.	Part No.	Description
111	614 256 9702	ASSY,PCB,FRONT-2,K-1
CN135	614 035 4942	SOCKET,5P
CN136	614 035 4911	SOCKET,2P
S1714	614 220 5655	SWITCH,TACT
S1715	614 220 5655	SWITCH,TACT
S1718	614 220 5655	SWITCH,TACT
S1719	614 220 5655	SWITCH,TACT
S1720	614 220 5655	SWITCH,TACT
S1721	614 220 5655	SWITCH,TACT
S1722	614 220 5655	SWITCH,TACT
S1723	614 220 5655	SWITCH,TACT
S1724	614 220 5655	SWITCH,TACT
S1725	614 220 5655	SWITCH,TACT
S1726	614 220 5655	SWITCH,TACT
S1727	614 220 5655	SWITCH,TACT

PARTS LIST

SHUTTER SAFETY SWITCH P.C.BOARD ASSY

Ref. No.	Part No.	Description
112	614 256 9689	ASSY,PCB,SHUT,K-1
CN138	614 017 3819	PLUG,2P
S1730	614 249 1355	SWITCH,LEVER

POWER SUPPLY & SOCKET P.C.BOARD ASSY

Ref. No.	Part No.	Description
113	614 256 9672	ASSY,PCB,DG,K-1
	614 203 7362	HEAT SINK
CN111	614 017 2096	PLUG,2P
CN112	614 017 2645	PLUG,13P
CN113	614 017 2621	PLUG,11P
CN114	614 017 2546	PLUG,3P
CN115	614 017 2553	PLUG,4P
CN116	614 017 2539	PLUG,2P
D1601	⚠407 005 2006	DIODE DS135D-KB1
or	⚠408 007 9307	DIODE 1SR35-200A-HP
D1602	⚠407 005 2006	DIODE DS135D-KB1
or	⚠408 007 9307	DIODE 1SR35-200A-HP
D1603	⚠407 005 2006	DIODE DS135D-KB1
or	⚠408 007 9307	DIODE 1SR35-200A-HP
D1604	⚠407 005 2006	DIODE DS135D-KB1
or	⚠408 007 9307	DIODE 1SR35-200A-HP
D1631	407 005 4505	DIODE DS442X
or	407 013 7109	DIODE 1S2473
or	407 013 1701	DIODE 1S1588
IC161	⚠409 254 7207	IC NJM7809FA
IC162	⚠409 036 8408	IC M5237L
L1501	614 212 3171	INDUCTOR,FERITE
L1502	614 212 3171	INDUCTOR,FERITE
LUG01	614 217 7273	LUG
LUG02	614 217 7273	LUG
Q1501	405 011 7503	TR 2SC1740-S
Q1502	405 011 7503	TR 2SC1740-S
Q1503	405 082 4609	TR DTA123YS
Q1601	⚠405 078 8109	TR TIP32B
Q1631	405 011 7503	TR 2SC1740-S
Q1632	405 000 4407	TR DTC124ES
Q1633	405 000 4407	TR DTC124ES
RA106	614 218 0433	RESISTOR
or	614 209 3634	RESISTOR
SA101	411 021 5705	SCR S-TPG BIN 3X6
SA102	411 021 5705	SCR S-TPG BIN 3X6

LAMP P.C.BOARD ASSY

Ref. No.	Part No.	Description
114	614 256 9665	ASSY,PCB,LAMP,K-1
CN140	614 035 4911	SOCKET,2P
PL161	614 253 4687	LAMP,8V 100MA
or	614 255 8157	LAMP,8V 100MA
PL162	614 253 4687	LAMP,8V 100MA
or	614 255 8157	LAMP,8V 100MA

MOTOR DRIVE P.C.BOARD ASSY

Ref. No.	Part No.	Description
115	614 249 5773	ASSY,PCB,MOTOR DRIVE,K-2
CN150	614 017 2539	PLUG,2P
CN151	614 017 2584	PLUG,7P
CN152	614 017 2577	PLUG,6P
CN153	614 017 2553	PLUG,4P
CN154	614 017 2539	PLUG,2P
CN155	614 017 2546	PLUG,3P
CN156	614 227 7836	SOCKET,32P
D1820	407 050 1009	ZENER DIODE GZA3.3Y
D1821	407 050 0606	ZENER DIODE GZA3.0X
D1822	407 050 1009	ZENER DIODE GZA3.3Y
D1823	407 049 8507	ZENER DIODE GZA2.2X
D1824	407 005 4505	DIODE DS442X
or	407 013 7109	DIODE 1S2473
or	407 013 1701	DIODE 1S1588
IC181	⚠409 127 1400	IC LB1648, MOTOR DRIVE
IC182	⚠409 127 1400	IC LB1648, MOTOR DRIVE
IC183	⚠409 127 1400	IC LB1648, MOTOR DRIVE
Q1810	405 001 9302	TR 2SA1020-Y
Q1811	405 000 4407	TR DTC124ES
Q1812	405 000 4407	TR DTC124ES
RA181	614 218 0464	RESISTOR
or	614 209 3696	RESISTOR
S1810	614 220 5655	SWITCH,TACT

MECHANISM SENSOR P.C.BOARD ASSY

Ref. No.	Part No.	Description
116	614 249 5780	ASSY,PCB,MECHA SENSOR,K-2
CN157	614 017 3826	PLUG,3P
CN158	614 017 3819	PLUG,2P
CN159	614 017 3819	PLUG,2P
CN160	614 017 3871	PLUG,8P
IC184	409 207 7506	IC MLC74HC14A
IC185	409 207 7506	IC MLC74HC14A

TUNER P.C.BOARD ASSY

Ref. No.	Part No.	Description
117	614 255 7921	ASSY,PCB,TU MAIN
	614 116 5349	SHIELD PLATE,SYMBOL SIDE
	614 117 1029	SHIELD PLATE,PATTERN SIDE
C2304	403 080 5000	POLYPRO 1000P J 100V
C2453	404 060 2606	OS-SOLID 1U M 10V
C2458	403 106 1603	NP-ELECT 1U Q 50V
CF201	614 030 5630	I.F FILTER
CF202	614 030 5630	I.F FILTER
CF204	614 211 2939	FILTER
or	614 252 4329	FILTER,AM,459KHZ
CF205	614 252 3926	CERAMIC FILTER
CN201	614 210 2688	TERMINAL
CN241	614 017 2638	PLUG,12P
CN242	614 017 2119	PLUG,4P
CN260	614 234 1728	TERMINAL
D2107	407 007 9904	DIODE GMA01
or	407 012 4406	DIODE 1SS133
or	407 012 5809	DIODE 1SS176
or	407 153 6119	DIODE 1SS119-041TD
D2201	407 007 9904	DIODE GMA01
or	407 012 4406	DIODE 1SS133
or	407 012 5809	DIODE 1SS176
or	407 153 6119	DIODE 1SS119-041TD
D2301	407 007 9904	DIODE GMA01
or	407 012 4406	DIODE 1SS133
or	407 012 5809	DIODE 1SS176
or	407 153 6119	DIODE 1SS119-041TD
D2302	407 007 9904	DIODE GMA01
or	407 012 4406	DIODE 1SS133
or	407 012 5809	DIODE 1SS176
or	407 153 6119	DIODE 1SS119-041TD
D2451	407 007 9904	DIODE GMA01
or	407 012 4406	DIODE 1SS133
or	407 012 5809	DIODE 1SS176
or	407 153 6119	DIODE 1SS119-041TD
IC201	409 195 3108	IC LA1265-AUD
IC202	409 016 9500	IC LA3361
IC203	409 066 7600	IC LM7001
L2150	614 256 8354	TUNER
L2451	614 028 4256	FILTER,100UH
Q2105	405 012 5904	TR 2SC1923-Y
Q2131	405 012 2002	TR 2SC1815-GR
or	405 020 7204	TR 2SC945A-K
or	405 011 7503	TR 2SC1740-S
Q2201	405 018 7902	TR 2SC380TM-O
Q2202	405 012 2002	TR 2SC1815-GR
or	405 020 7204	TR 2SC945A-K
or	405 011 7503	TR 2SC1740-S
Q2203	405 001 7001	TR 2SA1015-GR
Q2301	405 012 2002	TR 2SC1815-GR
or	405 020 7204	TR 2SC945A-K
or	405 011 7503	TR 2SC1740-S
Q2302	405 067 0800	TR RN2207
or	405 078 2404	TR BN1A4P
or	405 000 0904	TR DTA114YS
Q2351	405 067 0800	TR RN2207
or	405 078 2404	TR BN1A4P
or	405 000 0904	TR DTA114YS
Q2352	405 067 0800	TR RN2207
or	405 078 2404	TR BN1A4P
or	405 000 0904	TR DTA114YS
Q2451	405 012 2002	TR 2SC1815-GR
or	405 020 7204	TR 2SC945A-K
or	405 011 7503	TR 2SC1740-S
Q2452	405 012 2002	TR 2SC1815-GR
or	405 020 7204	TR 2SC945A-K
or	405 011 7503	TR 2SC1740-S
Q2461	405 012 2002	TR 2SC1815-GR
or	405 020 7204	TR 2SC945A-K
or	405 011 7503	TR 2SC1740-S
Q2701	405 012 2002	TR 2SC1815-GR
or	405 020 7204	TR 2SC945A-K
or	405 011 7503	TR 2SC1740-S
Q2702	405 016 2206	TR 2SC2878-A
or	405 016 2305	TR 2SC2878-B
Q2801	405 012 2002	TR 2SC1815-GR
or	405 020 7204	TR 2SC945A-K
or	405 011 7503	TR 2SC1740-S
Q2802	405 016 2206	TR 2SC2878-A
or	405 016 2305	TR 2SC2878-B
R2465	⚠401 018 1209	CARBON 33 JB 1/4W
SVR23	614 250 7414	POTENTIOMETER
T2202	614 030 4114	I.F.T,10.7M
T2203	614 029 3906	MX COIL
T2701	614 027 7845	CHOKE
T2801	614 027 7845	CHOKE
TU201	614 241 7447	TUNER
X2451	614 229 2457	CRYSTAL,7.2MHZ
or	614 240 1118	RESONATOR,7.2MH

PARTS LIST

FRONT P.C.BOARD ASSY

Ref. No.	Part No.	Description
118	614 255 7914	ASSY,PCB,FRONT
	614 250 5458	MOUNT-E,MOUNT-E
CN251	614 017 2669	PLUG,15P
CN252	614 254 5492	PLUG,12P
CN253	614 017 2638	PLUG,12P
CN255	614 020 6548	SOCKET,2P
CN488	614 017 2584	PLUG,7P
D2500	407 159 0309	PHOTO DIODE SPS-424-1
D2501	407 007 9904	DIODE GMA01
or	407 012 4406	DIODE 1SS133
or	407 012 5809	DIODE 1SS176
or	407 153 6119	DIODE 1SS119-041TD
D2502	407 007 9904	DIODE GMA01
or	407 012 4406	DIODE 1SS133
or	407 012 5809	DIODE 1SS176
or	407 153 6119	DIODE 1SS119-041TD
D2540	407 053 5806	ZENER DIODE MTZ4.7B
D2542	407 007 9904	DIODE GMA01
or	407 012 4406	DIODE 1SS133
or	407 012 5809	DIODE 1SS176
or	407 153 6119	DIODE 1SS119-041TD
D2590	408 018 4407	LED SLZ-145C-01-02
FL251	614 249 8668	FLUORESCENT TUBE
IC251	410 186 1003	IC UPD75236GJ-024-5BG
IC485	409 018 4909	IC LA6458S
L2501	614 028 4256	FILTER,100UH
Q2501	405 067 0800	TR RN2207
or	405 078 2404	TR BN1A4P
or	405 000 0904	TR DTA114YS
Q2541	405 001 7001	TR 2SA1015-GR
Q2543	405 001 0408	TR RN1204
or	405 078 3005	TR BA1L4M
or	405 000 6104	TR DTC144ES
Q2590	405 001 0408	TR RN1204
or	405 078 3005	TR BA1L4M
or	405 000 6104	TR DTC144ES
RA251	614 209 3665	RESISTOR
or	614 217 1325	RESISTOR
S2551	614 220 5570	SWITCH,TACT
S2552	614 220 5570	SWITCH,TACT
S2553	614 220 5570	SWITCH,TACT
S2554	614 220 5570	SWITCH,TACT
S2555	614 220 5570	SWITCH,TACT
S2556	614 220 5570	SWITCH,TACT
S2557	614 220 5570	SWITCH,TACT
S2558	614 220 5570	SWITCH,TACT
S2559	614 220 5570	SWITCH,TACT
S2571	614 220 5570	SWITCH,TACT
S2572	614 220 5570	SWITCH,TACT
S2573	614 220 5570	SWITCH,TACT
S2574	614 220 5570	SWITCH,TACT
S2575	614 220 5570	SWITCH,TACT
S2576	614 220 5570	SWITCH,TACT
S2577	614 220 5570	SWITCH,TACT
S2581	614 220 5570	SWITCH,TACT
S2582	614 220 5570	SWITCH,TACT
S2583	614 220 5570	SWITCH,TACT
S2584	614 220 5570	SWITCH,TACT
S2585	614 220 5570	SWITCH,TACT
S2586	614 220 5570	SWITCH,TACT
S2587	614 220 5570	SWITCH,TACT
S2588	614 220 5570	SWITCH,TACT
VR401	614 240 9893	VR,SLIDE
VR402	614 240 9893	VR,SLIDE
VR403	614 240 9893	VR,SLIDE
VR404	614 240 9893	VR,SLIDE
VR405	614 240 9893	VR,SLIDE
VR406	614 240 9909	VR,SLIDE
X2501	614 215 5561	RESONATOR,CERAM,1000KOHM

SWITCH P.C.BOARD ASSY

Ref. No.	Part No.	Description
119	614 255 7938	ASSY,PCB,SWITCH
CN256	614 020 6548	SOCKET,2P
S2578	614 220 5570	SWITCH,TACT
S2579	614 220 5570	SWITCH,TACT

TAPE DECK AMPLIFIER P.C.BOARD ASSY

Ref. No.	Part No.	Description
120	614 250 9142	ASSY,PCB,DECK
C3303	403 058 9108	POLYESTER 0.018U J 50V
C3304	403 058 1102	POLYESTER 1500P K 50V
CN301	614 017 2164	PLUG,9P,DECK-AMP
CN302	614 017 2096	PLUG,2P,DECK-AMP
CN303	614 017 2133	PLUG,6P,MECHA SW SOCKET
CN304	614 017 2102	PLUG,3P,TAPE SELECT SW SOCKET
CN305	614 016 4084	PLUG,2P,HIGH SPEED TEST POINT
CN306	614 223 9223	SOCKET,4P,DIP-MATE FOR MOTOR LEAD
or	614 020 6562	SOCKET,4P,DIP-MATE FOR MOTOR LEAD
CN307	614 020 6548	SOCKET,2P,DIP-MATE FOR STOP SW PCB
or	614 223 9209	SOCKET,2P,DIP-MATE FOR STOP SW PCB
CN308	614 220 2739	PLUG,6P,DECK-DOLBY DUB
CN371	614 017 2553	PLUG,4P,TAPE-A HEAD LEAD
CN372	614 017 2584	PLUG,7P,TAPE-B HEAD LEAD
CN373	614 035 5949	SOCKET,3P,TAPE OUT
D3101	407 007 9904	DIODE GMA01
or	407 012 4406	DIODE 1SS133
or	407 012 5809	DIODE 1SS176
or	407 153 6119	DIODE 1SS119-041TD
D3102	407 007 9904	DIODE GMA01
or	407 012 4406	DIODE 1SS133
or	407 012 5809	DIODE 1SS176
or	407 153 6119	DIODE 1SS119-041TD
D3103	407 007 9904	DIODE GMA01
or	407 012 4406	DIODE 1SS133
or	407 012 5809	DIODE 1SS176
or	407 153 6119	DIODE 1SS119-041TD
D3104	407 007 9904	DIODE GMA01
or	407 012 4406	DIODE 1SS133
or	407 012 5809	DIODE 1SS176
or	407 153 6119	DIODE 1SS119-041TD
D3105	407 007 9904	DIODE GMA01
or	407 012 4406	DIODE 1SS133
or	407 012 5809	DIODE 1SS176
or	407 153 6119	DIODE 1SS119-041TD
D3106	407 007 9904	DIODE GMA01
or	407 012 4406	DIODE 1SS133
or	407 012 5809	DIODE 1SS176
or	407 153 6119	DIODE 1SS119-041TD
D3107	407 007 9904	DIODE GMA01
or	407 012 4406	DIODE 1SS133
or	407 012 5809	DIODE 1SS176
or	407 153 6119	DIODE 1SS119-041TD
D3109	407 007 9904	DIODE GMA01
or	407 012 4406	DIODE 1SS133
or	407 012 5809	DIODE 1SS176
or	407 153 6119	DIODE 1SS119-041TD
3110	407 007 9904	DIODE GMA01
r	407 012 4406	DIODE 1SS133
r	407 012 5809	DIODE 1SS176
r	407 153 6119	DIODE 1SS119-041TD
D3111	407 007 9904	DIODE GMA01
or	407 012 4406	DIODE 1SS133
or	407 012 5809	DIODE 1SS176
or	407 153 6119	DIODE 1SS119-041TD
D3112	407 007 9904	DIODE GMA01
or	407 012 4406	DIODE 1SS133
or	407 012 5809	DIODE 1SS176
or	407 153 6119	DIODE 1SS119-041TD
D3113	407 007 9904	DIODE GMA01
or	407 012 4406	DIODE 1SS133
or	407 012 5809	DIODE 1SS176
or	407 153 6119	DIODE 1SS119-041TD
D3114	407 007 9904	DIODE GMA01
or	407 012 4406	DIODE 1SS133
or	407 012 5809	DIODE 1SS176
or	407 153 6119	DIODE 1SS119-041TD
IC351	409 270 2101	IC HA12136AT,DOLBY-B IC
or	409 199 1209	IC HA12136A,DOLBY-B IC
IC370	409 121 8702	IC LA3246, DOUBLE-DECK PRE AMP
IC371	409 207 1900	IC MLC4066B,C-MOS ANALOG-SW
or	409 003 9506	IC BU4066B,C-MOS ANALOG-SW
or	409 051 3501	IC TC4066BP,C-MOS ANALOG-SW
or	409 059 2605	IC UPD4066BC,C-MOS ANALOG-SW
IC374	409 214 1900	IC CXA1298AP,REC AMP IC
L3300	614 212 0804	TRANS,OSC,OSC COIL
L3501	614 252 4305	FILTER,LC,DOLBY NPX COIL
L3551	614 252 4305	FILTER,LC,DOLBY MPX COIL
L3700	614 028 4379	FILTER,1MH
L3750	614 029 3142	MX COIL,85KHZ,REC AMP BIAS TRAP COIL
L3800	614 028 4379	FILTER,1MH
L3850	614 029 3142	MX COIL,85KHZ,REC AMP BIAS TRAP COIL
Q3101	405 075 8409	TR DTC144TS
or	405 105 7204	TR BA1L4Z
Q3102	405 011 8609	TR 2SC1740S-S
or	405 011 8500	TR 2SC1740S-R
or	405 015 6403	TR 2SC2785-F
or	405 015 6205	TR 2SC2785-E
or	405 014 5209	TR 2SC2458-GR
Q3103	405 005 2002	TR 2SA733-P
or	405 005 1906	TR 2SA733-K
or	405 001 7001	TR 2SA1015-GR
Q3104	⚠405 012 7403	TR 2SC2001-K
or	⚠405 013 1301	TR 2SC2120-Y
Q3105	405 011 8609	TR 2SC1740S-S
or	405 011 8500	TR 2SC1740S-R
or	405 015 6403	TR 2SC2785-F
or	405 015 6205	TR 2SC2785-E
or	405 014 5209	TR 2SC2458-GR
Q3106	405 011 8609	TR 2SC1740S-S
or	405 011 8500	TR 2SC1740S-R
or	405 015 6403	TR 2SC2785-F
or	405 015 6205	TR 2SC2785-E
or	405 014 5209	TR 2SC2458-GR
Q3107	405 005 2002	TR 2SA733-P
or	405 005 1906	TR 2SA733-K
or	405 001 7001	TR 2SA1015-GR
Q3108	405 005 2002	TR 2SA733-P
or	405 005 1906	TR 2SA733-K
or	405 001 7001	TR 2SA1015-GR
Q3109	405 011 8609	TR 2SC1740S-S
or	405 011 8500	TR 2SC1740S-R
or	405 015 6403	TR 2SC2785-F
or	405 015 6205	TR 2SC2785-E
or	405 014 5209	TR 2SC2458-GR
Q3300	405 020 7402	TR 2SC945A-P
or	405 020 7204	TR 2SC945A-K
or	405 012 2002	TR 2SC1815-GR
Q3301	405 011 1907	TR 2SC1627-Y
Q3302	405 005 2002	TR 2SA733-P
or	405 005 1906	TR 2SA733-K
or	405 001 7001	TR 2SA1015-GR
Q3303	405 011 8609	TR 2SC1740S-S
or	405 011 8500	TR 2SC1740S-R
or	405 015 6403	TR 2SC2785-F
or	405 015 6205	TR 2SC2785-E
or	405 014 5209	TR 2SC2458-GR
Q3501	405 011 8609	TR 2SC1740S-S
or	405 011 8500	TR 2SC1740S-R
or	405 015 6403	TR 2SC2785-F
or	405 015 6205	TR 2SC2785-E
or	405 014 5209	TR 2SC2458-GR
Q3551	405 011 8609	TR 2SC1740S-S
or	405 011 8500	TR 2SC1740S-R
or	405 015 6403	TR 2SC2785-F
or	405 015 6205	TR 2SC2785-E
or	405 014 5209	TR 2SC2458-GR
Q3731	405 011 8609	TR 2SC1740S-S
or	405 011 8500	TR 2SC1740S-R
or	405 015 6403	TR 2SC2785-F
or	405 015 6205	TR 2SC2785-E
or	405 014 5209	TR 2SC2458-GR
Q3831	405 011 8609	TR 2SC1740S-S
or	405 011 8500	TR 2SC1740S-R
or	405 015 6403	TR 2SC2785-F
or	405 015 6205	TR 2SC2785-E
or	405 014 5209	TR 2SC2458-GR
R3901	402 061 6005	FUSIBLE RES 22 J- 1/4W
or	402 040 8907	FUSIBLE RES 22 G- 1/4W
S3000	614 248 9642	SWITCH,SLIDE, R/P SW
SVR30	614 250 7599	POTENTIOMETER,TAPE-A L-CH PLAY GAIN
SVR31	614 250 7599	POTENTIOMETER,TAPE-A R-CH PLAY GAIN
SVR32	614 250 7599	POTENTIOMETER,TAPE-B L-CH PLAY GAIN
SVR33	614 250 7599	POTENTIOMETER,TAPE-B R-CH PLAY GAIN
SVR34	614 250 7582	POTENTIOMETER,REC GAIN L-CH
SVR35	614 250 7582	POTENTIOMETER,REC GAIN R-CH
SVR36	614 250 7636	POTENTIOMETER
SVR37	614 250 7636	POTENTIOMETER
SVR39	614 250 7551	POTENTIOMETER,TAPE SPEED

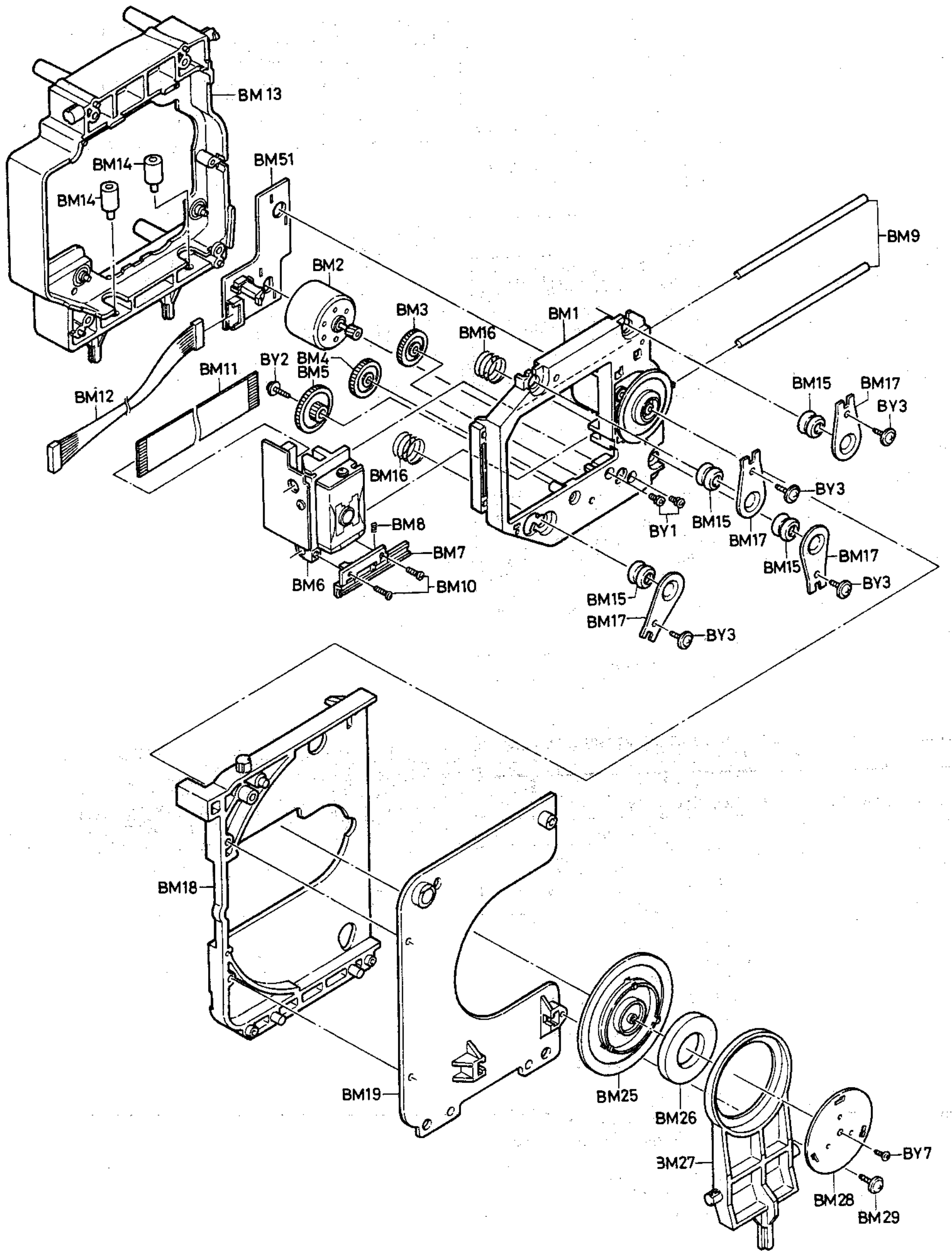
STOP SWITCH P.C.BOARD ASSY

Ref. No.	Part No.	Description
121	614 250 9159	ASSY,PCB,STOP SW
CN317	614 223 9209	SOCKET,2P,DIP-MATE FOR STOP SW
or	614 020 6548	SOCKET,2P,DIP-MATE FOR STOP SW
S3001	614 203 7911	SWITCH

CD MAIN P.C.BOARD ASSY

Ref. No.	Part No.	Description
122	614 258 6129	ASSY,PCB,CD MAIN
	614 256 7852	SHIELD
	614 125 6443	CUSHION
C1101	404 060 2804	OS-SOLID 4.7U M 10V
C1108	403 063 5706	POLYESTER 8200P K 50V
C1151	404 060 2804	OS-SOLID 4.7U M 10V
CN101	614 227 7706	SOCKET,13P
CN102	614 017 2577	PLUG,6P
CN103	614 234 0431	SOCKET,16P
CN104	614 017 2539	PLUG,2P
CN105	614 017 2553	PLUG,4P
CN106	614 017 2553	PLUG,4P,TP1-4
D1101	407 007 9904	DIODE GMA01
or	407 012 4406	DIODE 1SS133
or	407 153 6119	DIODE 1SS119-041TD
D1102	407 007 9904	DIODE GMA01
or	407 012 4406	DIODE 1SS133
or	407 153 6119	DIODE 1SS119-041TD
D1401	407 007 9904	DIODE GMA01
or	407 012 4406	DIODE 1SS133
or	407 153 6119	DIODE 1SS119-041TD
IC101	409 245 4802	IC LA9210M,SSP
IC102	⚠409 267 8109	IC BA6296FP,DRIVER
IC104	409 261 0505	IC LC7867E,DSP
IC105	409 284 5808	IC SM5871AS
IC106	409 228 9206	IC NJM2100M,BAFF
IC151	⚠409 039 9204	IC NJM78L05A,AUDIO REG
L1401	614 028 4133	FILTER,10UH
Q1101	405 006 1905	TR 2SA933S-S
Q1102	405 011 7503	TR 2SC1740-S
Q1103	405 000 4407	TR DTC124ES
Q1301	405 001 9302	TR 2SA1020-Y
Q1504	405 001 9302	TR 2SA1020-Y
Q1505	405 000 4407	TR DTC124ES
SVR11	614 250 7414	POTENTIOMETER,T.BAL
X101	614 231 2667	RESONATOR,16.93MHZ

EXPLODED VIEW (CD BASE (PICKUP) MECHANISM)



PARTS LIST (CD MECHANISM)

24 CD ROTARY CHANGER MECHANISM (PM-DADRCH1 / SP)

BASE (PICKUP) SECTION

Ref. No.	Part No.	Description
BM1	614 253 7039	ASSY,CHASSIS,BASE
BM2	614 238 7399	ASSY,MOTOR,SLED
BM3	614 237 7093	GEAR,SLED RETARD 1
BM4	614 237 7109	GEAR,SLED RETARD 2
BM5	614 237 7116	GEAR,SLED
BM6	614 239 1303	PICKUP,LASER,SF-P1PS
BM7	614 237 7123	GEAR,PICKUP RACK
BM8	614 238 6934	SPRING,COMP,PICKUP RACK GEAR
BM9	614 237 7024	SHAFT,PICKUP RAIL
BM10	412 045 0905	SPECIAL SCREW, PICKUP RACK GEAR
BM11	614 249 8699	CORD,13P,TO PICKUP
BM12	614 253 5295	ASSY,CONNECTOR-S,6P, MOTOR & SW
BM13	614 247 8851	CHASSIS,SUB,PLATE,BASE
BM14	614 195 6978	RUBBER CUSHION,FLOAT UP/DOWN
BM15	614 237 7031	CUSHION,RUBBER,FLOAT SIDE
BM16	614 247 4907	SPRING,COMP,FLOAT SIDE
BM17	614 247 8929	BRACKET-M,BASE MECHA HOLD
BM18	614 247 8943	MOUNT-M,BASE MECHA BRACKET
BM19	614 247 8950	MOUNT-M,CHUCK BRACKET
BM20	614 247 8905	BRACKET-M,BASE MECHA,IN
BM21	614 247 8912	BRACKET-M,BASE MECHA,OUT
BM22	614 247 8899	BRACKET-M,BASE MECHA SUPPORT
BM23	412 003 1708	SPECIAL SCREW,BRACKET(BM22)
BM24	614 129 9099	LUG,EARTH
BM25	614 250 2648	ASSY,PULLEY,CHUCKING
BM26	614 247 2347	MAGNET,CHUCKING PRESSURE
BM27	614 253 7787	ASSY,LEVER,CHUCKING
BM28	614 233 0227	PLATE,CHUCKING
BM29	412 003 1708	SPECIAL SCREW, CHUCK LEVER(BM27)

FIXING PARTS (BASE SECTION)

Ref. No.	Part No.	Description
BY1	411 044 8004	SCR PAN+SW 2X8,SLED MOTOR FIX
BY2	411 024 3807	SCR S-TPG PAN+FLG 2X8, SLED GEAR FIX
BY3	411 020 9902	SCR S-TPG BRZ+FLG 3X8, BRACKET-M(BM17) FIX
BY4	411 020 8905	SCR S-TPG BRZ+FLG 3X10, MOUNT-M(BM20·BM21) FIX
BY5	411 020 9902	SCR S-TPG BRZ+FLG 3X8, BRACKET-M(BM20·BM21) FIX
BY6	411 020 9902	SCR S-TPG BRZ+FLG 3X8, DISC GUIDE UP FIX
BY7	411 022 7500	SCR S-TPG PAN 2X4, CHUCK PLATE(BM28) FIX

MOTORS & SWITCH P.C.BOARD ASSY

Ref. No.	Part No.	Description
MB51	614 251 6485	ASSY,PCB,MOTORS & LIMIT SW
CN001	614 017 3857	PLUG,6P,TO CD MAIN
S001	614 231 4005	SWITCH,LEAF,LIMIT

ROTARY CHANGER SECTION

Ref. No.	Part No.	Description
CM1	614 247 8844	CHASSIS,ROTARY CHANGER
CM2	614 247 9186	TURNTABLE,DISC-TABLE,24 CD
CM3	614 247 8967	MOUNT-M,TOP PANEL
CM4	614 247 9261	SLIDE,CHUCKING DRIVE
CM5	614 255 4999	ASSY,MOTOR,CHUCKING
CM6	614 253 5806	ASSY,CONNECTOR-S,4P,CHUCKING & PLAY-LOADING MOTOR
CM7	614 253 8968	ASSY,CONNECTOR-S,7P,CHUCKING SW - MOTOR DRIVER PCB
CM8	614 247 9063	GEAR,SLIDE DRIVER M-2
CM9	614 247 9070	GEAR,SLIDE DRIVER M-1
CM10	614 247 9216	LEVER,SWITCH
CM13	614 249 0525	SPRING,TENS,FOR PINCH LEVER
CM15	614 247 8882	BRACKET-E,SENSOR BRACKET
CM16	614 253 6957	ASSY,MOTOR,DISC-TABLE
CM17	614 247 9209	BELT,SQUARE,DISC-TABLE ROTATE
CM18	614 247 9148	PULLEY,TRAY
CM19	614 247 9056	GEAR,TRAY TURN
CM21	614 249 9351	ASSY,ROLLER,DISC-TABLE SUPPORT
CM22	614 249 4035	SHAFT,DISC-TABLE ROLLER
CM23	412 003 1708	SPECIAL SCREW,ROLLER(CM21)
CM24	614 255 4999	ASSY,MOTOR,FRONT LOADING
CM25	614 253 5790	ASSY,CONNECTOR-S,4P,FRONT-LOADING & DISC-TABLE MECHA
CM26	614 247 9087	GEAR,SLIDE CUM(FRONT)
CM27	620 123 0772	SCREW WASHER,GEAR(CM26) FIX
CM28	614 253 9071	ASSY,GEAR,SLIP(FRONT)
CM29	614 247 9117	GEAR,LOADING GEAR 4(FRONT)
CM30	614 247 9124	GEAR,LOADING GEAR 3(FRONT)
CM31	614 247 9131	GEAR,LOADING GEAR 2(FRONT)
CM32	614 247 9278	SLIDE,DISC SLIDE
CM33	614 247 8837	COVER,FRONT SHUTTER
CM34	614 254 8011	ASSY,BRACKET-E,SENSOR LED (FRONT-LEFT)
CM35	614 253 8913	ASSY,CONNECTOR-S,2P,FRONT LED
CM36	614 247 8875	BRACKET-E,SENSOR RECEIVE (FRONT-RIGHT)
CM37	614 250 2662	ASSY,ROLLER,FRONT RIGHT
CM38	614 247 9162	BEARING,ROLLER SHAFT SUPPORT
CM39	614 247 9339	SPRING,TORS,ROLLER PRESS(DOWN)
CM40	614 253 7305	SPRING,TORS,ROLLER PRESS(UPPER)
CM41	614 253 8975	ASSY,CONNECTOR-S,8P,FRONT PHOTO DIODE
CM42	614 051 9808	LUG,EARTH,TO BOTTOM
CM43	614 051 9785	LUG,EARTH,BK,FOR CM34
or	614 051 9785	LUG,EARTH,BK,FOR CM36
CM44	614 253 8913	ASSY,CONNECTOR-S,2P,INITIAL SW
CM45	614 255 4999	ASSY,MOTOR,PLAY LOADING
CM46	614 247 9087	GEAR,SLIDE CUM(PLAY)
CM47	620 123 0772	SCREW WASHER,GEAR(CM46) FIX
CM48	614 253 9071	ASSY,GEAR,SLIP(PLAY)
CM49	614 247 9117	GEAR,LOADING GEAR 4(PLAY)
CM50	614 247 9124	GEAR,LOADING GEAR 3(PLAY)
CM51	614 247 9131	GEAR,LOADING GEAR 2(PLAY)
CM52	614 247 9278	SLIDE,DISC
CM53	614 254 8028	ASSY,LEVER,ROLLER,PLAY,LEFT
CM54	614 129 9068	LUG,LEVER(CM53) EARTH
CM55	614 129 9341	LUG,LEAD WIRE FIX
CM56	614 247 9315	SPRING,TENS,LEVER(CM53) PULL
CM57	614 254 8035	ASSY,LEVER,ROLLER,BACK,RIGHT
CM58	614 129 9068	LUG,LEVER(CM57) EARTH

PARTS LIST (CD MECHANISM)

Ref. No.	Part No.	Description
CM59	614 129 9341	LUG,LEAD WIRE FIX
CM60	614 248 9314	BRACKET-E,PLAY LED(P-L)
CM61	614 253 8913	ASSY,CONNECTOR-S,2P,PLAY LED
CM62	614 248 9307	BRACKET-E,PLAY SENSOR(P-R)
CM63	614 253 8944	ASSY,CONNECTOR-S,3P, PLAY SENSOR
CM64	614 129 9105	LUG,LEAD WIRE FIX
CM65	614 253 8951	ASSY,CONNECTOR-S,6P, LOCK SLIDE SW
CM66	614 247 8974	MOUNT-M,TOP PANEL FOR CHANGE
CM67	614 253 6964	ASSY,MOTOR,SHUTTER
CM68	614 253 5783	ASSY,CONNECTOR-S,2P, SHUTTER MOTOR
CM69	614 247 9124	GEAR,IDLER FOR SHUTTER
CM70	614 247 9131	GEAR,IDLER FOR SHUTTER
CM71	614 247 9049	GEAR,SHUTTER DRIVE
CM72	614 249 4066	SPRING,TORS,SHUTTER PUSH
CM73	614 253 8937	ASSY,CONNECTOR-S,3P, SHUTTER OPEN/CLOSE SW
CM74	614 247 8981	MOUNT-M,SW LEVER DRIVE
CM75	614 253 7299	BELT,SQUARE,PREVENT FOR NOISE
CM76	412 047 7308	SPECIAL WASHER,FOR DISC NOISE
	614 125 6443	CUSHION,LEAD WIRE DRESSING

FIXING PARTS (ROTARY CHANGER SECTION)

Ref. No.	Part No.	Description
CY1	411 020 9902	SCR S-TPG BRZ+FLG 3X8, SLIDE(CM4) FIX
CY2	411 020 9902	SCR S-TPG BRZ+FLG 3X8, PCB(CM101) FIX
CY3	411 020 9902	SCR S-TPG BRZ+FLG 3X8, BRACKET MOTOR(CM5) FIX
CY4	411 119 9103	SCR S-TPG PAN 2X16, GEAR(CM8) FIX
CY5	411 020 9902	SCR S-TPG BRZ+FLG 3X8, LEVER(CM10) FIX
CY6	411 023 2207	SCR S-TPG PAN 2.6X4, PCB(CM102) FIX
CY7	411 020 9902	SCR S-TPG BRZ+FLG 3X8, BRACKET(CM15) FIX
CY8	411 020 9902	SCR S-TPG BRZ+FLG 3X8, BRACKET MOTOR(CM16) FIX
CY9	411 020 9902	SCR S-TPG BRZ+FLG 3X8, BRACKET MOTOR(CM24) FIX
CY10	411 020 9902	SCR S-TPG BRZ+FLG 3X8, SLIDE(CM32) FIX
CY11	411 020 9902	SCR S-TPG BRZ+FLG 3X8, COVER(CM33) FIX
CY12	411 023 2801	SCR S-TPG PAN 2.6X6, PCB(CM103) FIX
CY13	411 020 9902	SCR S-TPG BRZ+FLG 3X8, BRACKET(CM34) FIX
CY14	411 023 2801	SCR S-TPG PAN 2.6X6, PCB(CM104) FIX
CY15	411 020 9902	SCR S-TPG BRZ+FLG 3X8, BRACKET(CM36) FIX
CY16	411 020 9902	SCR S-TPG BRZ+FLG 3X8, PCB(CM105) FIX
CY17	411 020 9902	SCR S-TPG BRZ+FLG 3X8, BRACKET MOTOR(CM45) FIX
CY18	411 020 9902	SCR S-TPG BRZ+FLG 3X8, SLIDE(CM52) FIX
CY20	411 025 1901	SCR S-TPG PAN 2X3, LUG(CM54·CM55) FIX
CY22	411 025 1901	SCR S-TPG PAN 2X3, LUG(CM58·CM59) FIX
CY23	411 023 2801	SCR S-TPG PAN 2.6X6, PCB(CM106) FIX
CY24	411 020 9902	SCR S-TPG BRZ+FLG 3X8, BRACKET-E(CM60) FIX
CY25	411 023 2801	SCR S-TPG PAN 2.6X6, PCB(CM107) FIX
CY26	411 020 9902	SCR S-TPG BRZ+FLG 3X8, BRACKET-E(CM62) FIX
CY27	411 020 9902	SCR S-TPG BRZ+FLG 3X8, PCB(CM108) FIX
CY28	411 020 9407	SCR S-TPG BRZ+FLG 3X14, TOP PANEL(CM3) FIX
CY29	411 020 8905	SCR S-TPG BRZ+FLG 3X10, MOUNT-M(CM66) FIX
CY30	411 044 7205	SCR PAN+SW 2X4, SHUTTTER MOTOR(CM67) FIX
CY31	411 020 9902	SCR S-TPG BRZ+FLG 3X8, GEAR(CM71) FIX
CY32	411 020 9902	SCR S-TPG BRZ+FLG 3X8, PCB(CM109) FIX
CY33	411 020 9902	SCR S-TPG BRZ+FLG 3X8, MOTOR DRIVER PCB FIX
CY34	411 022 8408	SCR S-TPG PAN 2X8, MOUNT-M(CM74) FIX
CY35	411 023 3303	SCR S-TPG PAN 2.6X8, GEAR(CM19) FIX
CY36	411 087 6005	WASHER V 2.6X7.5X0.5, GEAR(CM19) FIX

CHUKING SWITCH P.C.BOARD ASSY

Ref. No.	Part No.	Description
CM101	614 249 5681	ASSY,PCB,CHUCKING SW
CN181	614 017 2584	PLUG,7P,TO MOTOR DRIVER
CN182	614 017 2553	PLUG,4P,TO CHUCKING & PLAY-LOADING MOTOR
D1801	407 012 4406	DIODE 1SS133
or	407 007 9904	DIODE GMA01
D1802	407 012 4406	DIODE 1SS133
or	407 007 9904	DIODE GMA01
S1801	614 249 1355	SWITCH,LEVER,CHUCKING OFF
S1802	614 249 1355	SWITCH,LEVER,CHUCKING ON

DISC STOP SENSOR P.C.BOARD ASSY

Ref. No.	Part No.	Description
CM102	614 249 5704	ASSY,PCB,DISC STOP SENSOR
CN185	614 224 9932	ASSY,CONNECTOR-S,3P, TO LOCK SLIDE SW
D1818	407 137 8006	PHOTO COUPLE GP1A53HR, DISC-TABLE POSITION

FRONT LED P.C.BOARD ASSY

Ref. No.	Part No.	Description
CM103	614 249 5735	ASSY,PCB,FRONT LED
	614 252 0956	COVER,SENSOR(LED)
CN189	614 017 3819	PLUG,2P,TO MECHA SENSOR
D1810	408 018 8108	LED SRZ-935A-1-BC-T1,CD CHECK
D1811	408 018 8108	LED SRZ-935A-1-BC-T1,CD CHECK
D1812	408 018 8108	LED SRZ-935A-1-BC-T1,CD CHECK
D1813	408 018 8108	LED SRZ-935A-1-BC-T1,CD CHECK
D1814	408 018 8108	LED SRZ-935A-1-BC-T1,CD CHECK
D1815	408 018 8108	LED SRZ-935A-1-BC-T1,CD CHECK

PARTS LIST (CD MECHANISM)

FRONT SENSOR P.C.BOARD ASSY

Ref. No.	Part No.	Description
CM104	614 249 5742	ASSY,PCB,FRONT SENSOR
	614 252 0956	COVER,SENSOR(PHOTO DIODE)
CN188	614 017 3871	PLUG,8P,TO MECHA SENSOR
D1830	407 159 6004	PHOTO DIODE PT380F,DISC CHECK
D1831	407 159 6004	PHOTO DIODE PT380F,DISC CHECK
D1832	407 159 6004	PHOTO DIODE PT380F,DISC CHECK
D1833	407 159 6004	PHOTO DIODE PT380F,DISC CHECK
D1834	407 159 6004	PHOTO DIODE PT380F,DISC CHECK
D1835	407 159 6004	PHOTO DIODE PT380F,DISC CHECK
D1809	407 012 4406	DIODE 1SS133
or	407 007 9904	DIODE GMA01
S1808	614 249 1355	SWITCH,LEVER,SHUTTER,CLOSE END
S1809	614 249 1355	SWITCH,LEVER,SHUTTER,OPEN END

INITIAL SWITCH P.C.BOARD ASSY

Ref. No.	Part No.	Description
CM105	614 249 5711	ASSY,PCB,INITIAL SW(NO.1 DISC POSITION DETECTOR)
CN186	614 017 2539	PLUG,2P,TO MOTOR DRIVER
D1807	407 012 4406	DIODE 1SS133
or	407 007 9904	DIODE GMA01
S1807	614 250 0101	SWITCH,LEVER, INITIAL POSITION(RESET)

PLAY LED P.C.BOARD ASSY

Ref. No.	Part No.	Description
CM106	614 249 5759	ASSY,PCB,PLAY LED
	614 252 0956	COVER,SENSOR(LED)
CN191	614 017 3819	PLUG,2P,TO MECHA SENSOR
D1817	408 018 8108	LED SRZ-935A-1-BC-T1, DISC CHECK

PLAY SENSOR P.C.BOARD ASSY

Ref. No.	Part No.	Description
CM107	614 249 5766	ASSY,PCB,PLAY SENSOR
	614 252 0956	COVER,SENSOR(PHOTP DIODE)
CN190	614 017 3826	PLUG,3P,TO MECHA SENSOR
D1836	407 159 6004	PHOTO DIODE PT380F,DISC CHECK

LOCK SLIDE SWITCH P.C.BOARD ASSY

Ref. No.	Part No.	Description
CM108	614 249 5698	ASSY,PCB,LOCK SLIDE SW
CN183	614 017 3857	PLUG,6P,TO MOTOR DRIVER
CN184	614 017 3826	PLUG,3P,TO DISC STOP SENSOR
D1804	407 012 4406	DIODE 1SS133
or	407 007 9904	DIODE GMA01
D1805	407 012 4406	DIODE 1SS133
or	407 007 9904	DIODE GMA01
S1804	614 249 1355	SWITCH,LEVER, DISC SLIDE RESET(PLAY)
S1805	614 249 1355	SWITCH,LEVER, DISC SLIDE RESET(FRONT)

SHUTTER OPEN / CLOSE P.C.BOARD ASSY

Ref. No.	Part No.	Description
CM109	614 249 5728	ASSY,PCB,SHUTTER OPEN/CLOSE SW
CN187	614 017 2546	PLUG,3P,TO MOTOR DRIVER
D1808	407 012 4406	DIODE 1SS133
or	407 007 9904	DIODE GMA01

ARTS LIST (CD MECHANISM)

ONT S ENSOR P.C.BOARD ASSY

ef. No.	Part No.	Description
104	614 249 5742	ASSY,PCB,FRONT SENSOR
	614 252 0956	COVER,SENSOR(PHOTO DIODE)
188	614 017 3871	PLUG,8P,TO MECHA SENSOR
830	407 159 6004	PHOTO DIODE PT380F,DISC CHECK
831	407 159 6004	PHOTO DIODE PT380F,DISC CHECK
832	407 159 6004	PHOTO DIODE PT380F,DISC CHECK
833	407 159 6004	PHOTO DIODE PT380F,DISC CHECK
834	407 159 6004	PHOTO DIODE PT380F,DISC CHECK
835	407 159 6004	PHOTO DIODE PT380F,DISC CHECK

ITIAL SWITCH P.C.BOARD ASSY

ef. No.	Part No.	Description
105	614 249 5711	ASSY,PCB,INITIAL SW(NO.1 DISC POSITION DETECTOR)
186	614 017 2539	PLUG,2P,TO MOTOR DRIVER
1807	407 012 4406	DIODE 1SS133
-	407 007 9904	DIODE GMA01
1807	614 250 0101	SWITCH,LEVER, INITIAL POSITION(RESET)

AY LED P.C.BOARD ASSY

ef. No.	Part No.	Description
106	614 249 5759	ASSY,PCB,PLAY LED
	614 252 0956	COVER,SENSOR(LED)
191	614 017 3819	PLUG,2P,TO MECHA SENSOR
1817	408 018 8108	LED SRZ-935A-1-BC-T1, DISC CHECK

AY SENSOR P.C.BOARD ASSY

ef. No.	Part No.	Description
107	614 249 5766	ASSY,PCB,PLAY SENSOR
	614 252 0956	COVER,SENSOR(PHOTP DIODE)
190	614 017 3826	PLUG,3P,TO MECHA SENSOR
1836	407 159 6004	PHOTO DIODE PT380F,DISC CHECK

CK SLIDE SWITCH P.C.BOARD ASSY

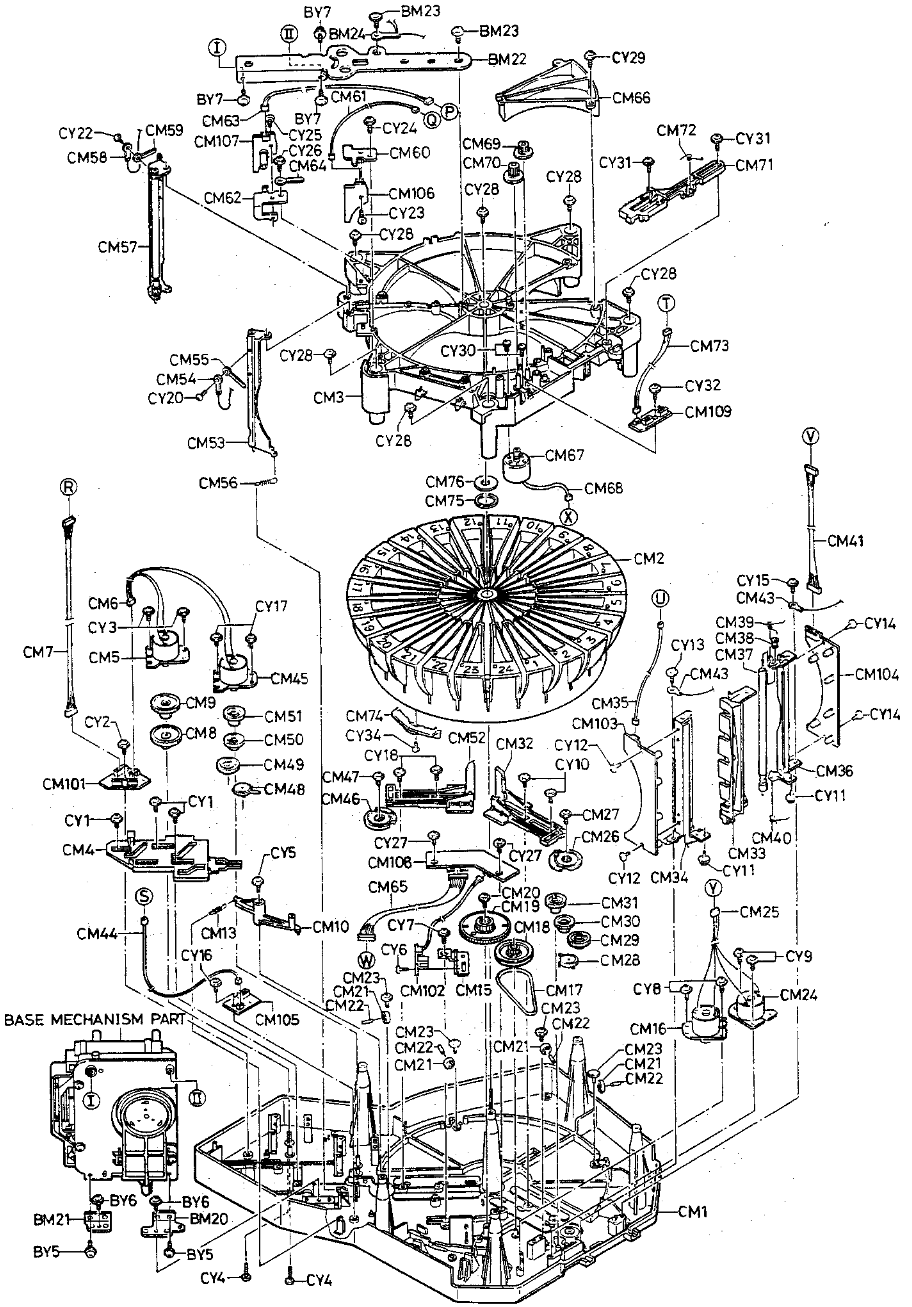
ef. No.	Part No.	Description
108	614 249 5698	ASSY,PCB,LOCK SLIDE SW
183	614 017 3857	PLUG,6P,TO MOTOR DRIVER
184	614 017 3826	PLUG,3P,TO DISC STOP SENSOR
1804	407 012 4406	DIODE 1SS133
r	407 007 9904	DIODE GMA01
1805	407 012 4406	DIODE 1SS133
r	407 007 9904	DIODE GMA01
1804	614 249 1355	SWITCH,LEVER, DISC SLIDE RESET(PLAY)
1805	614 249 1355	SWITCH,LEVER, DISC SLIDE RESET(FRONT)

UTTER OPEN / CLOSE P.C.BOARD ASSY

ef. No.	Part No.	Description
M109	614 249 5728	ASSY,PCB,SHUTTER OPEN/CLOSE SW
N187	614 017 2546	PLUG,3P,TO MOTOR DRIVER
1808	407 012 4406	DIODE 1SS133
r	407 007 9904	DIODE GMA01

Ref. No.	Part No.	Description
D1809	407 012 4406	DIODE 1SS133
or	407 007 9904	DIODE GMA01
S1808	614 249 1355	SWITCH,LEVER,SHUTTER,CLOSE END
S1809	614 249 1355	SWITCH,LEVER,SHUTTER,OPEN END

EXPLODED VIEW (CD ROTARY MECHANISM)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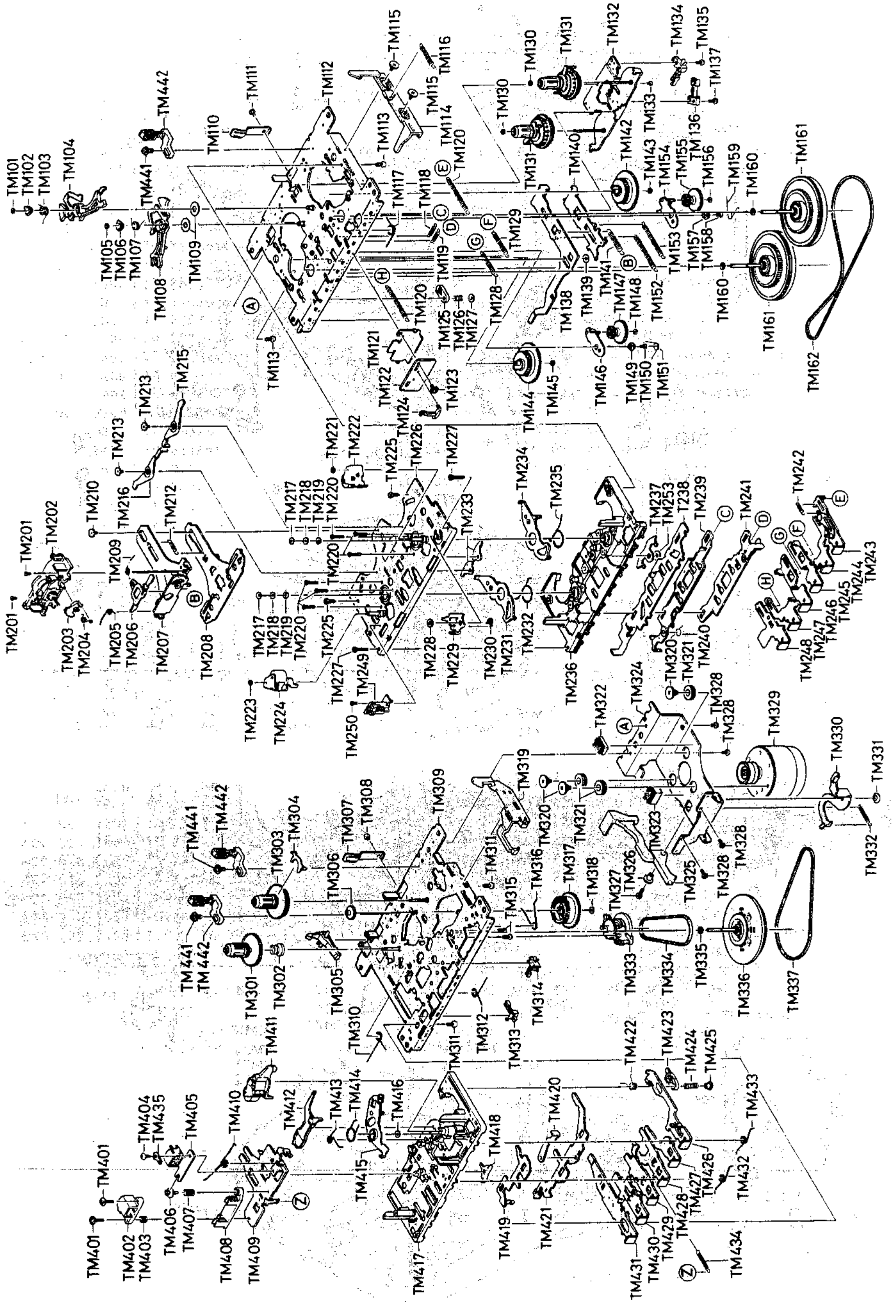
XPLODED VIEW (TAPE MECHANISM)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PARTS LIST (TAPE MECHANISM)

TAPE MECHANISM TM-W993TN/SH

Ref. No.	Part No.	Description
TM101	412 013 4904	SPECIAL WASHER,P WASHER CUT 1.2X3X0.25
TM102	614 196 2825	STOPPER,SPRING STOPPER
TM103	614 196 1958	SPRING WIRE,AUTO LEVER (F)SPRING
TM104	614 196 1514	LEVER,AUTO LEVER (F)
TM105	412 013 4904	SPECIAL WASHER,P WASHER CUT 1.2X3X0.25
TM106	614 196 2825	STOPPER,SPRING STOPPER
TM107	614 196 1941	SPRING WIRE,AUTO LEVER(R) SPRING
TM108	614 196 1521	LEVER,AUTO LEVER(R)
TM109	412 027 3405	SPECIAL WASHER,P WASHER 3X8.5X0.13
TM110	614 196 1897	SPRING PLATE,PACK SPRING
TM111	412 046 6302	SPECIAL SCREW,C TIGHT M2X3 SPECIAL
TM112	614 204 6395	CHASSIS ASSY,CHASSIS ASSY
TM113	412 003 8707	SPECIAL SCREW,P TAPP SCREW M2X6
TM114	614 251 8069	SLIDE,EJECT SLIDE LEVER
TM115	412 005 8101	SPECIAL SCREW,P.K COLLAR(A)
TM116	614 196 1798	SPRING COIL,EJECT SLIDE LEVER
TM117	614 204 4216	SPRING COIL,STOP BUTTON LEVER
TM118	614 196 1804	SPRING COIL,LOCK ACTUATOR
TM119	614 196 1835	SPRING COIL,SW ACTUATOR
TM120	614 196 1859	SPRING COIL,PROG BUTTON LEVER
TM121	614 196 2764	SHIELD PLATE,H
TM122	614 205 4963	P.C BOARD,H.W. TERMINAL PLATE(S)
TM123	412 027 2101	SPECIAL SCREW,TWO LOCK SCREW M2X4
TM124	614 129 5763	FIXER,WIRE CLUMP
TM125	614 196 1422	LEVER,PAUSE
TM126	614 196 1736	SPRING COIL,PAUSE LEVER
TM127	412 013 7608	SPECIAL WASHER,P WASHER CUT 2.1X5X0.5
TM128	614 196 1842	SPRING COIL,FF BUTTON LEVER
TM130	412 027 3504	SPECIAL WASHER,P WASHER CUT 1.2X3.7X0.4
TM131	614 219 4782	REEL ASSY
TM132	614 196 5345	BRACKET REEL SHAFT ASSY
TM133	412 036 3908	SPECIAL SCREW,TSS 1.7X3
TM134	614 211 2564	SWITCH,LEAF
TM135	412 004 0908	SPECIAL SCREW,+ C TAPP SCREW M2X5
TM136	614 196 9756	SWITCH,LEAF
TM137	412 004 0908	SPECIAL SCREW,+ C TAPP SCREW M2X5
TM138	614 196 1262	SLIDE,RELEASE PLATE
TM139	412 013 7608	SPECIAL WASHER,P WASHER CUT 2.1X5X0.5
TM140	614 196 1392	SLIDE,FF SW PLATE
TM141	614 196 1767	SPRING COIL,R.C. SPRING(M)
TM142	614 204 6005	GEAR,T CAM GEAR(F)
TM143	412 013 4904	SPECIAL WASHER,P WASHER CUT 1.2X3X0.25
TM144	614 204 6012	GEAR,T CAM GEAR(R)
TM145	412 013 4904	SPECIAL WASHER,P WASHER CUT 1.2X3X0.25
TM146	614 196 4317	LEVER ASSY,FF GEAR ARM(R)
TM147	614 196 1248	GEAR,FF
TM148	412 013 4904	SPECIAL WASHER,P WASHER CUT 1.2X3X0.25
TM149	614 196 1156	BOSS,FF GEAR ARM COLLER
TM150	412 036 4103	SPECIAL SCREW,T.SS 1.7X4
TM151	614 196 1996	SPRING WIRE,FF GEAR ARM(F)
TM152	614 196 1828	SPRING COIL,BUTTON LEVER(P)
TM153	614 196 1880	SPRING COIL,FF SW PLATE SPRING
TM154	614 196 4300	LEVER ASSY,FF GEAR ARM(F)
TM155	614 196 1248	GEAR,FF
TM156	412 013 4904	SPECIAL WASHER,P WASHER CUT 1.2X3X0.25
TM157	614 196 1156	BOSS,FF GEAR ARM COLLER
TM158	412 036 4103	SPECIAL SCREW,T.SS 1.7X4
TM159	614 196 1996	SPRING WIRE,FF GEAR ARM(F)
TM160	412 027 3207	SPECIAL WASHER,P WASHER 2.1X3X0.3
TM161	614 196 4201	FLYWHEEL ASSY
TM162	614 196 2924	SQUARE BELT,MAIN
TM201	412 029 8408	SPECIAL SCREW,CAMERA S TAPP SCREW M1.7
TM202	614 210 0158	ASSY,BRACKET,HEADW/ROTARY HEAD,PLAY
TM203	614 196 1170	GEAR,H TURN OVER GEAR
TM204	614 196 2009	SPRING WIRE,H TURN OVER
TM205	614 198 7729	SPRING WIRE,PINCH ROLLER(R)
TM206	614 196 1293	SLIDE,HEAD SLIDE PLATE
TM207	614 196 1279	SLIDE,HEAD PANEL
TM208	614 196 1286	SLIDE,R.C PLATE
TM209	614 198 7750	SPRING WIRE,PINCH ROLLER SPRING(F)
TM210	412 044 9206	SPECIAL SCREW,HP COLLER SCREW
TM212	614 196 1743	SPRING COIL,R.C. PLATE SPRING
TM213	412 044 9305	SPECIAL SCREW,CONTROL ARM COLLAR
TM215	614 209 4266	LEVER,AUTO CONTROL ARM(F)
TM216	614 209 4273	LEVER,AUTO CONTROL ARM(R)
TM217	412 027 3306	SPECIAL WASHER,P WASHER 1.75X4X0.3
TM218	412 028 2100	SPECIAL WASHER,P WASHER CUT 1.45X4X0.5
TM219	412 013 8902	SPECIAL WASHER,P WASHIR CUT1.45X4X0.5
TM220	412 036 4004	SPECIAL SCREW,T.SS 1.7X8.5
TM221	412 013 4904	SPECIAL WASHER,P WASHER CUT 1.2X3X0.25
TM222	614 198 8665	LEVER PINCH ROLLER ASSY,(F)
TM223	412 013 4904	SPECIAL WASHER,P WASHER CUT 1.2X3X0.25
TM224	614 198 8672	LEVER PINCH ROLLER ASSY,(R)
TM225	412 036 3908	SPECIAL SCREW,TSS 1.7X3
TM226	614 209 4037	SUB CHASSIS ASSY
TM227	412 027 2903	SPECIAL SCREW,C TAPP SCREW M2X10
TM228	412 031 9608	SPECIAL WASHER,E RING S2.0
TM229	614 196 1538	LEVER,TURN OVER ARM
TM230	614 196 1965	SPRING WIRE,TURN OVER SPRING
TM231	614 204 5749	LEVER ASSY,T GEAR(R)
TM232	614 196 1989	SPRING WIRE,T GEAR(R)
TM233	614 196 1507	LEVER,RC ARM
TM234	614 205 1153	LEVER ASSY,T GEAR ARM(F)

PARTS LIST (TAPE MECHANISM)

TAPE MECHANISM TM-W993TN/SH

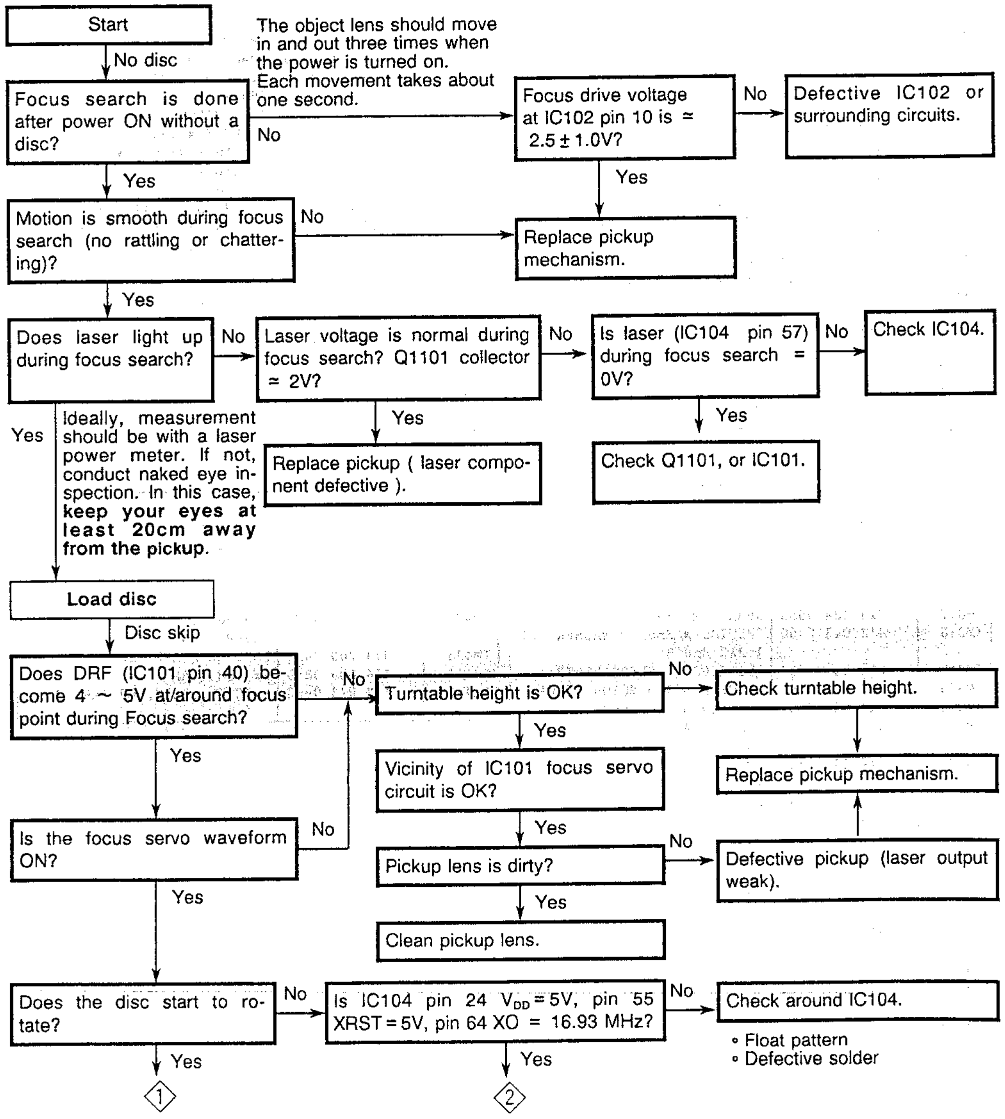
Ref. No.	Part No.	Description
TM101	412 013 4904	SPECIAL WASHER,P WASHER CUT 1.2X3X0.25
TM102	614 196 2825	STOPPER,SPRING STOPPER
TM103	614 196 1958	SPRING WIRE,AUTO LEVER (F)SPRING
TM104	614 196 1514	LEVER,AUTO LEVER (F)
TM105	412 013 4904	SPECIAL WASHER,P WASHER CUT 1.2X3X0.25
TM106	614 196 2825	STOPPER,SPRING STOPPER
TM107	614 196 1941	SPRING WIRE,AUTO LEVER(R) SPRING
TM108	614 196 1521	LEVER,AUTO LEVER(R)
TM109	412 027 3405	SPECIAL WASHER,P WASHER 3X8.5X0.13
TM110	614 196 1897	SPRING PLATE,PACK SPRING
TM111	412 046 6302	SPECIAL SCREW,C TIGHT M2X3 SPECIAL
TM112	614 204 6395	CHASSIS ASSY,CHASSIS ASSY
TM113	412 003 8707	SPECIAL SCREW,P TAPP SCREW M2X6
TM114	614 251 8069	SLIDE,EJECT SLIDE LEVER
TM115	412 005 8101	SPECIAL SCREW,P.K COLLAR(A)
TM116	614 196 1798	SPRING COIL,EJECT SLIDE LEVER
TM117	614 204 4216	SPRING COIL,STOP BUTTON LEVER
TM118	614 196 1804	SPRING COIL,LOCK ACTUATOR
TM119	614 196 1835	SPRING COIL,SW ACTUATOR
TM120	614 196 1859	SPRING COIL,PROG BUTTON LEVER
TM121	614 196 2764	SHIELD PLATE,H
TM122	614 205 4963	P.C BOARD,H.W. TERMINAL PLATE(S)
TM123	412 027 2101	SPECIAL SCREW,TWO LOCK SCREW M2X4
TM124	614 129 5763	FIXER,WIRE CLUMP
TM125	614 196 1422	LEVER,PAUSE
TM126	614 196 1736	SPRING COIL,PAUSE LEVER
TM127	412 013 7608	SPECIAL WASHER,P WASHER CUT 2.1X5X0.5
TM128	614 196 1842	SPRING COIL,FF BUTTON LEVER
TM130	412 027 3504	SPECIAL WASHER,P WASHER CUT 1.2X3.7X0.4
TM131	614 219 4782	REEL ASSY
TM132	614 196 5345	BRACKET REEL SHAFT ASSY
TM133	412 036 3908	SPECIAL SCREW,TSS 1.7X3
TM134	614 211 2564	SWITCH,LEAF
TM135	412 004 0908	SPECIAL SCREW,+ C TAPP SCREW M2X5
TM136	614 196 9756	SWITCH,LEAF
TM137	412 004 0908	SPECIAL SCREW,+ C TAPP SCREW M2X5
TM138	614 196 1262	SLIDE,RELEASE PLATE
TM139	412 013 7608	SPECIAL WASHER,P WASHER CUT 2.1X5X0.5
TM140	614 196 1392	SLIDE,FF SW PLATE
TM141	614 196 1767	SPRING COIL,R.C. SPRING(M)
TM142	614 204 6005	GEAR,T CAM GEAR(F)
TM143	412 013 4904	SPECIAL WASHER,P WASHER CUT 1.2X3X0.25
TM144	614 204 6012	GEAR,T CAM GEAR(R)
TM145	412 013 4904	SPECIAL WASHER,P WASHER CUT 1.2X3X0.25
TM146	614 196 4317	LEVER ASSY,FF GEAR ARM(R)
TM147	614 196 1248	GEAR,FF
TM148	412 013 4904	SPECIAL WASHER,P WASHER CUT 1.2X3X0.25
TM149	614 196 1156	BOSS,FF GEAR ARM COLLER
TM150	412 036 4103	SPECIAL SCREW,T.SS 1.7X4
TM151	614 196 1996	SPRING WIRE,FF GEAR ARM(F)
TM152	614 196 1828	SPRING COIL,BUTTON LEVER(P)
TM153	614 196 1880	SPRING COIL,FF SW PLATE SPRING
TM154	614 196 4300	LEVER ASSY,FF GEAR ARM(F)
TM155	614 196 1248	GEAR,FF
TM156	412 013 4904	SPECIAL WASHER,P WASHER CUT 1.2X3X0.25
TM157	614 196 1156	BOSS,FF GEAR ARM COLLER
TM158	412 036 4103	SPECIAL SCREW,T.SS 1.7X4
TM159	614 196 1996	SPRING WIRE,FF GEAR ARM(F)
TM160	412 027 3207	SPECIAL WASHER,P WASHER 2.1X3X0.3
TM161	614 196 4201	FLYWHEEL ASSY
TM162	614 196 2924	SQUARE BELT,MAIN
TM201	412 029 8408	SPECIAL SCREW,CAMERA S TAPP SCREW M1.7
TM202	614 210 0158	ASSY,BRACKET,HEADW/ROTARY HEAD,PLAY
TM203	614 196 1170	GEAR,H TURN OVER GEAR
TM204	614 196 2009	SPRING WIRE,H TURN OVER
TM205	614 198 7729	SPRING WIRE,PINCH ROLLER(R)
TM206	614 196 1293	SLIDE,HEAD SLIDE PLATE
TM207	614 196 1279	SLIDE,HEAD PANEL
TM208	614 196 1286	SLIDE,R.C PLATE
TM209	614 198 7750	SPRING WIRE,PINCH ROLLER SPRING(F)
TM210	412 044 9206	SPECIAL SCREW,HP COLLER SCREW
TM212	614 196 1743	SPRING COIL,R.C. PLATE SPRING
TM213	412 044 9305	SPECIAL SCREW,CONTROL ARM COLLAR
TM215	614 209 4266	LEVER,AUTO CONTROL ARM(F)
TM216	614 209 4273	LEVER,AUTO CONTROL ARM(R)
TM217	412 027 3306	SPECIAL WASHER,P WASHER 1.75X4X0.3
TM218	412 028 2100	SPECIAL WASHER,P WASHER CUT 1.45X4X0.5
TM219	412 013 8902	SPECIAL WASHER,P WASHIR CUT1.45X4X0.5
TM220	412 036 4004	SPECIAL SCREW,T.SS 1.7X8.5
TM221	412 013 4904	SPECIAL WASHER,P WASHER CUT 1.2X3X0.25
TM222	614 198 8665	LEVER PINCH ROLLER ASSY,(F)
TM223	412 013 4904	SPECIAL WASHER,P WASHER CUT 1.2X3X0.25
TM224	614 198 8672	LEVER PINCH ROLLER ASSY,(R)
TM225	412 036 3908	SPECIAL SCREW,TSS 1.7X3
TM226	614 209 4037	SUB CHASSIS ASSY
TM227	412 027 2903	SPECIAL SCREW,C TAPP SCREW M2X10
TM228	412 031 9608	SPECIAL WASHER,E RING S2.0
TM229	614 196 1538	LEVER,TURN OVER ARM
TM230	614 196 1965	SPRING WIRE,TURN OVER SPRING
TM231	614 204 5749	LEVER ASSY,T GEAR(R)
TM232	614 196 1989	SPRING WIRE,T GEAR(R)
TM233	614 196 1507	LEVER,RC ARM
TM234	614 205 1153	LEVER ASSY,T GEAR ARM(F)

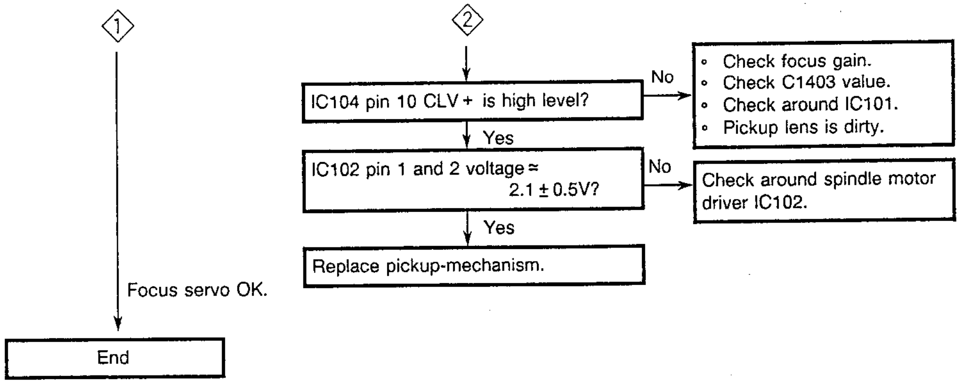
PARTS LIST (TAPE MECHANISM)

Ref. No.	Part No.	Description
TM235	614 196 1972	SPRING WIRE,T GEAR ARM(F)
TM236	614 205 1139	SUB CHASSIS ASSY,BUTTN BASE
TM237	614 196 1477	LEVER,FF CONTROL ARM
TM238	614 196 1378	SLIDE,SLIDE PLATE
TM239	614 196 5871	SLIDE ASSY,LOCK ACTUATOR
TM240	614 198 7743	SPRING WIRE,LOCK RELEASE
TM241	614 204 6418	SLIDE ASSY,SW ACTUATOR
TM242	614 196 1811	SPRING COIL,PULL ARM SPRING
TM243	614 219 3006	ASSY,SLIDE,PROG BUTTON LEVER
TM244	614 205 5489	SLIDE,STOP BUTTON LEVER
TM245	614 205 5472	SLIDE,FF BUTTON LEVER(S)
TM246	614 205 5465	SLIDE,FF BUTTON LEVER(R)
TM247	614 205 5526	SLIDE,PLAY BUTTON LEVER
TM248	614 205 8305	ASSY,SLIDE,MODE BUTTON LEVER
TM249	614 198 8658	BRACKET SWITCH ASSY,DIRECTION SW
TM250	412 027 2705	SPECIAL SCREW,CAMERA S TAPP SCREW M1.7
TM253	412 031 0902	SPECIAL WASHER,P WASHER 2.8X6X0.5
TM301	614 211 3868	REEL ASSY,SUPPLY
TM302	614 208 0351	SPRING,COMP,BACK TENSIONS
TM303	614 211 3875	REEL ASSY,TAKE UP
TM304	614 195 5094	LEVER,SENSOR
TM305	614 140 1508	LEVER,RECORD SAFETY
TM306	614 134 9046	GEAR,FF GEAR
TM307	614 196 1897	SPRING PLATE,PACK
TM308	412 046 6302	SPECIAL SCREW,C TIGHT M2X3SPECIAL
TM309	614 067 2770	CHASSIS ASSY
TM310	614 205 5595	SPRING,WIRE,REC BUTTON LEVER
TM311	412 026 2201	SPECIAL SCREW,P TAPP BIND SCREW M2X5
TM312	614 152 1282	SPRING WIRE,P.S. LEVER
TM313	614 024 1693	SWITCH,LEAF
TM314	614 195 4424	SWITCH,LEAF
TM315	412 026 2300	SPECIAL SCREW,CAMERA TAPP SCREW M2X4.5
TM316	614 152 1275	SPRING WIRE,E ACTUATOR
TM317	614 134 9053	GEAR,CAM GEAR
TM318	412 013 5000	SPECIAL WASHER,P WASHER CUT 1.2X3.8X0.3
TM319	614 205 5410	SLIDE,EJECT SLIDE LEVER
TM320	412 003 8103	SPECIAL SCREW,MOTOR COLLAR
TM321	614 126 6831	CUSHION,MOTOR RUBBER
TM322	614 196 2801	CUSHION,ANTI-VIBRATION FELT MAT
TM323	614 196 2818	CUSHION,ANTI-VIBRATION FELT MAT
TM324	614 196 2795	BRACKET MOTOR,MOTOR BRACKET
TM325	614 196 1453	LEVER,P KICK(B)
TM326	614 196 1101	BOSS,COLLAR(B)
TM327	412 031 9707	SPECIAL SCREW,C TAPP SCREW M2X6
TM328	412 026 2003	SPECIAL SCREW,C TAPP SCREW M2X4
TM329	614 251 7604	ASSY,MOTOR,PULLEY
TM330	614 196 1439	LEVER,P KICK(A)
TM331	412 005 8101	SPECIAL SCREW,P.K. COLLER(A)
TM332	614 196 1781	SPRING COIL,P KICK LEVER
TM333	614 204 5732	PULLEY ASSY,RF CLUTCH
TM334	614 195 5087	SQUARE BELT,RF
TM336	614 068 1871	FLYWHEEL DISK ASSY
TM337	614 204 4681	SQUARE BELT,MAIN
TM401	412 027 4600	SPECIAL SCREW,SCREW M2X8
TM402	614 021 8831	MAGNETIC HEAD
TM403	614 151 5090	SPRING COIL,EH
TM404	412 031 9509	SPECIAL SCREW,(+) BIND SCREW M2X3
TM405	614 208 4052	HEAD,R/P
TM406	412 026 1709	SPECIAL SCREW,AZIMUTH SCREW M2X7
TM407	614 151 7162	SPRING COIL,AZIMUTH SPRING
TM408	614 196 0470	BRACKET HEAD,HEAD BASE
TM409	614 210 6822	SLIDE,HEAD PANEL
TM410	614 210 3432	SPRING WIRE,PANEL(P)SPRING
TM411	614 237 2371	ASSY,PINCHROLLER
TM412	614 140 1614	LEVER,SENSING
TM413	614 152 1299	SPRING WIRE,M CONTROL SPRING
TM414	614 253 2553	SPRING WIRE,GEAR PLATE SPRING
TM415	614 070 0916	LEVER ASSY,GEAR PLATE
TM416	412 026 1808	SPECIAL WASHER,P WASHER CUT1.45X3.8X0.5
TM417	614 067 3258	SUB CHASSIS ASSY,BASE
TM418	614 129 0676	BOSS,PR STOPPER
TM419	614 201 1744	SLIDE,SWITCH ACTUATOR
TM420	614 140 1539	LEVER,E KICK
TM421	614 139 1120	SLIDE,PUSH BUTTON ACTUATOR
TM422	614 152 1244	SPRING WIRE,P CONTROL
TM423	614 211 3615	LEVER,PAUSE
TM424	614 151 7186	SPRING COIL,PAUSE LEVER
TM425	614 129 0669	BOSS,PAUSE STOPPER
TM426	614 211 3608	LEVER,PAUSE BUTTON
TM427	614 205 5458	SLIDE,STOP BUTTON LEVER
TM428	614 205 5540	SLIDE,FF BUTTON LEVER
TM429	614 205 5441	SLIDE,REW BUTTON LEVER
TM430	614 205 5434	SLIDE,PLAY BUTTON LEVER
TM431	614 205 5427	SLIDE,REC BUTTON LEVER
TM432	614 152 1251	SPRING WIRE,BUTTON LEVERSPRING(A)
TM433	614 152 1268	SPRING WIRE,BUTTON LEVER SPRING(B)
TM434	614 151 4703	SPRING COIL,PLAY BUTTON LEVER SP(S)
TM435	614 209 3443	LUG,RUG PLATE S2X4
TM441	614 209 3849	SWITCH,LEAF
TM442	412 023 0903	SPECIAL SCREW,CUP TAPP 2X5

1. Defective Focus Search of CD (1) (No Disc rotation. NO dISC appears on the display.)

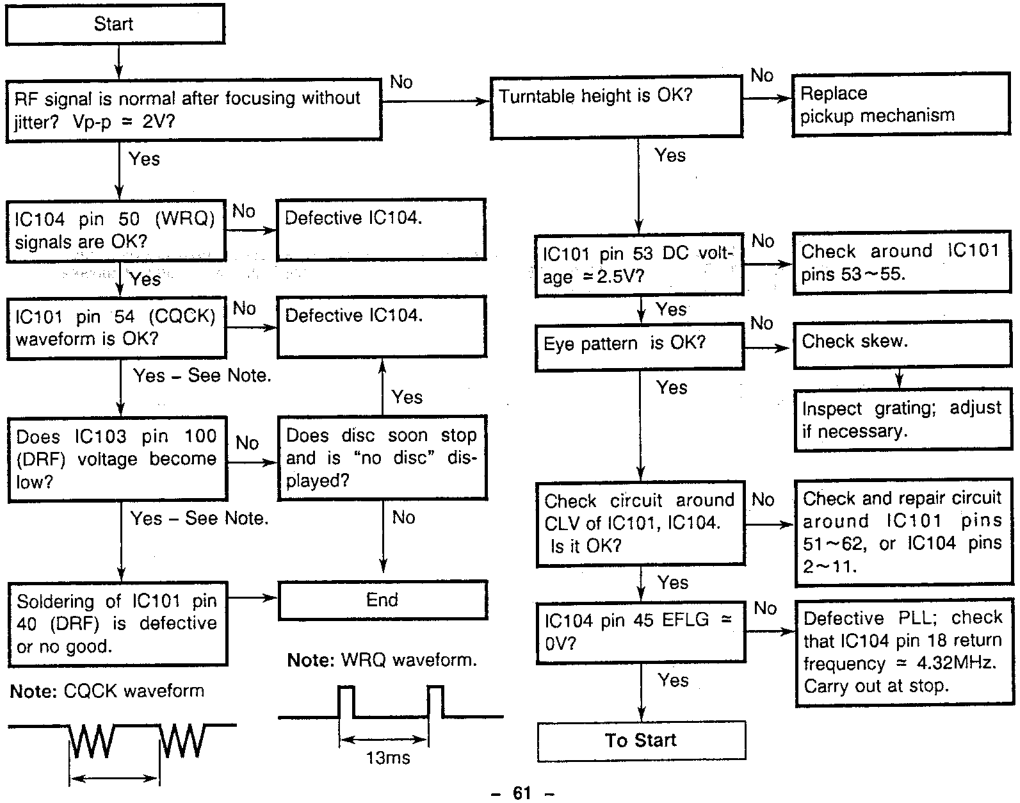
Operating conditions:
- Pickup return OK
- Disc skip OK
- Display OK
- Base mechanism OK


Start
No disc
The object lens should move in and out three times when the power is turned on. Each movement takes about one second.
Focus search is done after power ON without a disc?
No
Focus drive voltage at IC102 pin 10 is ≈ 2.5 ± 1.0V?
No
Defective IC102 or surrounding circuits.
Yes
Yes
Motion is smooth during focus search (no rattling or chattering)?
No
Replace pickup mechanism.
Yes
Does laser light up during focus search?
No
Laser voltage is normal during focus search? Q1101 collector ≈ 2V?
No
Is laser (IC104 pin 57) during focus search ≈ 0V?
No
Check IC104.
Yes
Ideally, measurement should be with a laser power meter. If not, conduct naked eye inspection. In this case, keep your eyes at least 20cm away from the pickup.
Yes
Replace pickup (laser component defective).
Yes
Check Q1101, or IC101.
Load disc
Disc skip
Does DRF (IC101 pin 40) become 4 ~ 5V at/around focus point during Focus search?
No
Turntable height is OK?
No
Check turntable height.
Yes
Replace pickup mechanism.
Yes
Vicinity of IC101 focus servo circuit is OK?
Yes
Pickup lens is dirty?
No
Defective pickup (laser output weak).
Yes
Clean pickup lens.
Is the focus servo waveform ON?
No
Yes
Does the disc start to rotate?
No
Is IC104 pin 24 V_{DD} = 5V, pin 55 XRST = 5V, pin 64 XO = 16.93 MHz?
No
Check around IC104.
◦ Float pattern
◦ Defective solder
Yes
①
Yes
②


①
②
IC104 pin 10 CLV + is high level?
No
◦ Check focus gain.
◦ Check C1403 value.
◦ Check around IC101.
◦ Pickup lens is dirty.
Yes
IC102 pin 1 and 2 voltage ≈ 2.1 ± 0.5V?
No
Check around spindle motor driver IC102.
Yes
Replace pickup-mechanism.
Focus servo OK.
End

2. Defective Focus Search of CD (2) (Disc rotates but soon stops. NO DISC is displayed)

Operating conditions:
- Pickup return OK
- Open/Close OK
- Display OK
- Focus search (lens move) OK
- Base mechanism up/down OK
- Focusing servo on OK

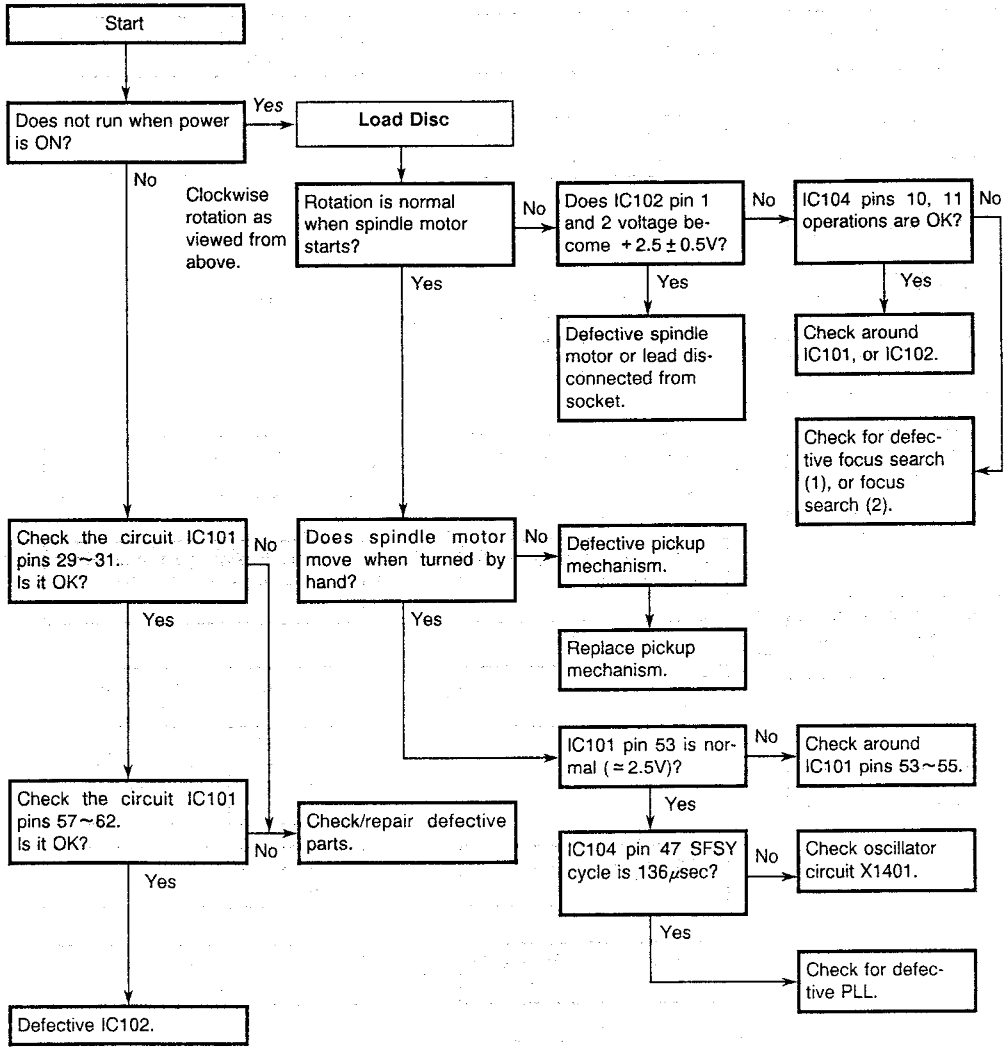

Start
RF signal is normal after focusing without jitter? Vp-p ≈ 2V?
No
Turntable height is OK?
No
Replace pickup mechanism
Yes
Yes
IC104 pin 50 (WRQ) signals are OK?
No
Defective IC104.
Yes
IC101 pin 54 (CQCK) waveform is OK?
No
Defective IC104.
Yes - See Note.
Does IC103 pin 100 (DRF) voltage become low?
No
Does disc soon stop and is "no disc" displayed?
Yes
No
Yes - See Note.
Soldering of IC101 pin 40 (DRF) is defective or no good.
End
Note: CQCK waveform
Note: WRQ waveform.
13ms
IC101 pin 53 DC voltage ≈ 2.5V?
No
Check around IC101 pins 53~55.
Yes
Eye pattern is OK?
No
Check skew.
Inspect grating; adjust if necessary.
Yes
Check circuit around CLV of IC101, IC104. Is it OK?
No
Check and repair circuit around IC101 pins 51~62, or IC104 pins 2~11.
Yes
IC104 pin 45 EFLG ≈ 0V?
No
Defective PLL; check that IC104 pin 18 return frequency ≈ 4.32MHz. Carry out at stop.
Yes
To Start

TROUBLE SHOOTING GUIDE

3. Defective Spindle Motor Rotation of CD

Operating conditions:

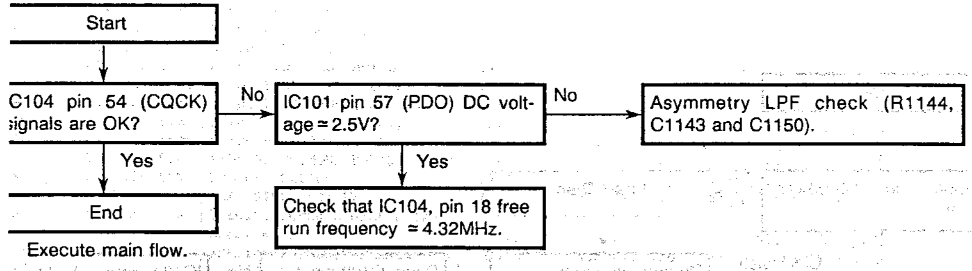
- Pickup return OK
- Focus search (lens move) OK
- Display OK
- Focusing servo on OK
- XRST = 5V OK
- Tracking servo on OK


Start
Does not run when power is ON?
Yes
Load Disc
No
Clockwise rotation as viewed from above.
Rotation is normal when spindle motor starts?
No
Does IC102 pin 1 and 2 voltage become +2.5 ± 0.5V?
No
IC104 pins 10, 11 operations are OK?
No
Yes
Yes
Defective spindle motor or lead disconnected from socket.
Yes
Check around IC101, or IC102.
Check for defective focus search (1), or focus search (2).
Check the circuit IC101 pins 29~31. Is it OK?
No
Does spindle motor move when turned by hand?
No
Defective pickup mechanism.
Yes
Yes
Replace pickup mechanism.
IC101 pin 53 is normal (≈ 2.5V)?
No
Check around IC101 pins 53~55.
Yes
Check the circuit IC101 pins 57~62. Is it OK?
No
Check/repair defective parts.
IC104 pin 47 SFSY cycle is 136μsec?
No
Check oscillator circuit X1401.
Yes
Yes
Check for defective PLL.
Defective IC102.

I. Defective PLL of CD

Operating conditions:

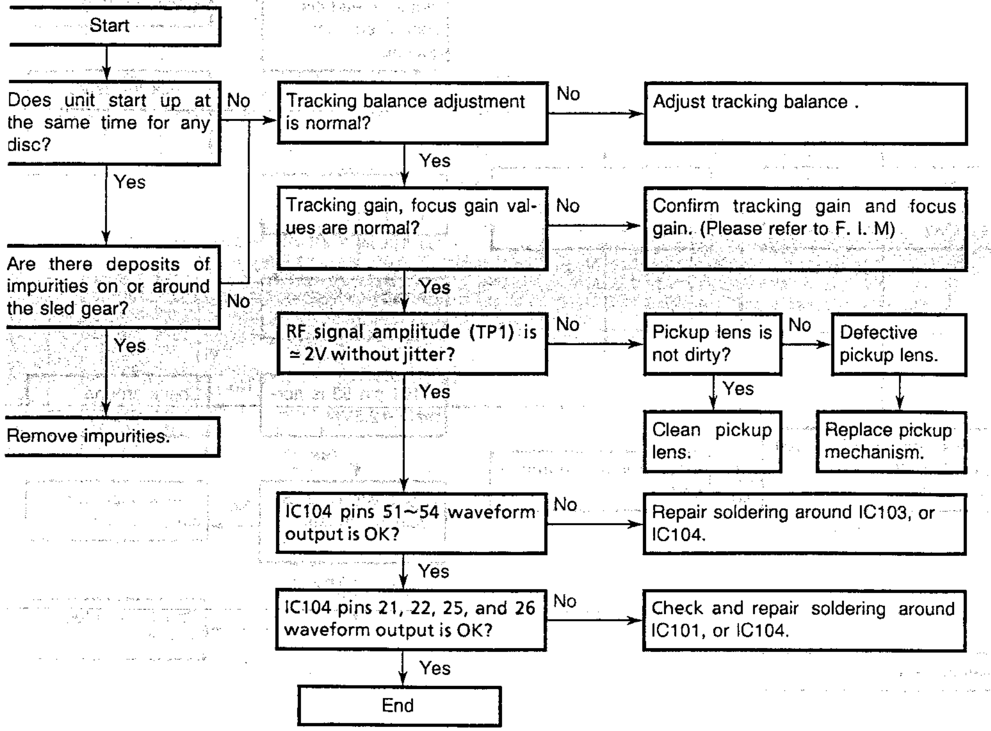
- Pickup return OK
- Sled servo on OK
- Focusing servo on OK
- Focus search (lens move) OK
- Tracking servo on OK


Start
C104 pin 54 (CQCK) signals are OK?
No
IC101 pin 57 (PDO) DC voltage ≈ 2.5V?
No
Asymmetry LPF check (R1144, C1143 and C1150).
Yes
Check that IC104, pin 18 free run frequency ≈ 4.32MHz.
Yes
End
Execute main flow.

5. Track Jumping of CD

Operating conditions:

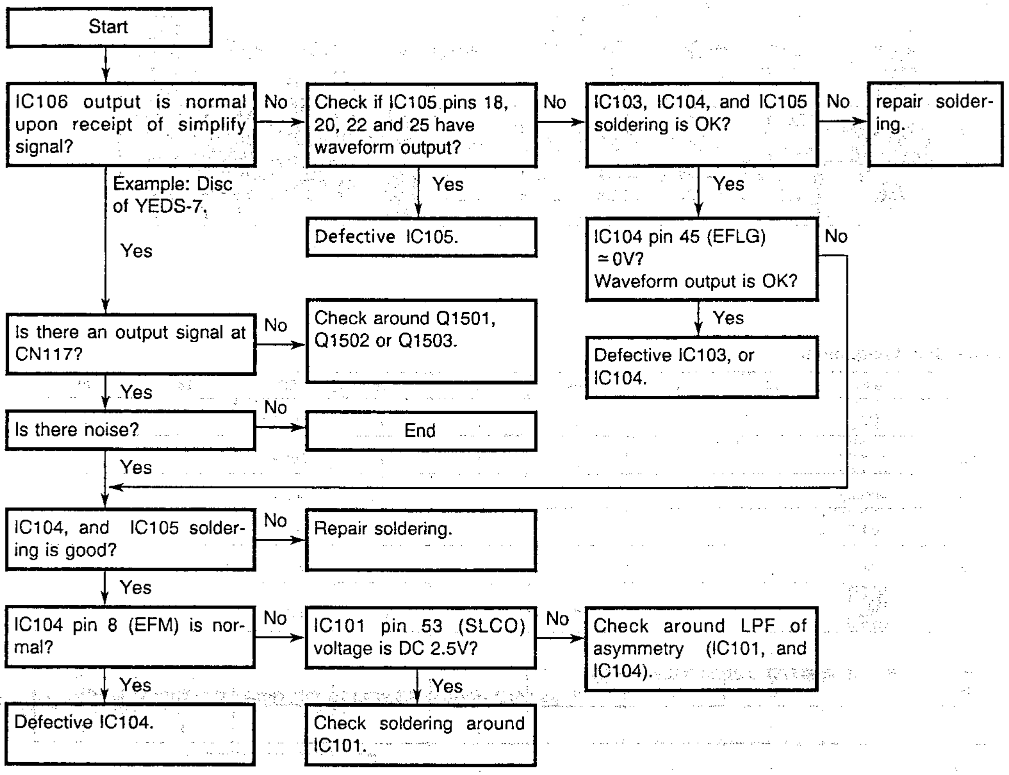
- Pickup return OK
- Sled servo on OK
- Display OK
- Open/Close OK
- Focus search (lens move) OK
- Focusing servo on OK
- Tracking servo on OK


Start
Does unit start up at the same time for any disc?
No
Yes
Are there deposits of impurities on or around the sled gear?
No
Yes
Remove impurities.
Tracking balance adjustment is normal?
No
Adjust tracking balance .
Yes
Tracking gain, focus gain values are normal?
No
Confirm tracking gain and focus gain. (Please refer to F. I. M)
Yes
RF signal amplitude (TP1) is ≈ 2V without jitter?
No
Pickup lens is not dirty?
No
Defective pickup lens.
Yes
Clean pickup lens.
Replace pickup mechanism.
Yes
IC104 pins 51~54 waveform output is OK?
No
Repair soldering around IC103, or IC104.
Yes
IC104 pins 21, 22, 25, and 26 waveform output is OK?
No
Check and repair soldering around IC101, or IC104.
Yes
End

6. Defective Sound of CD (Sound is absent or distorted.)

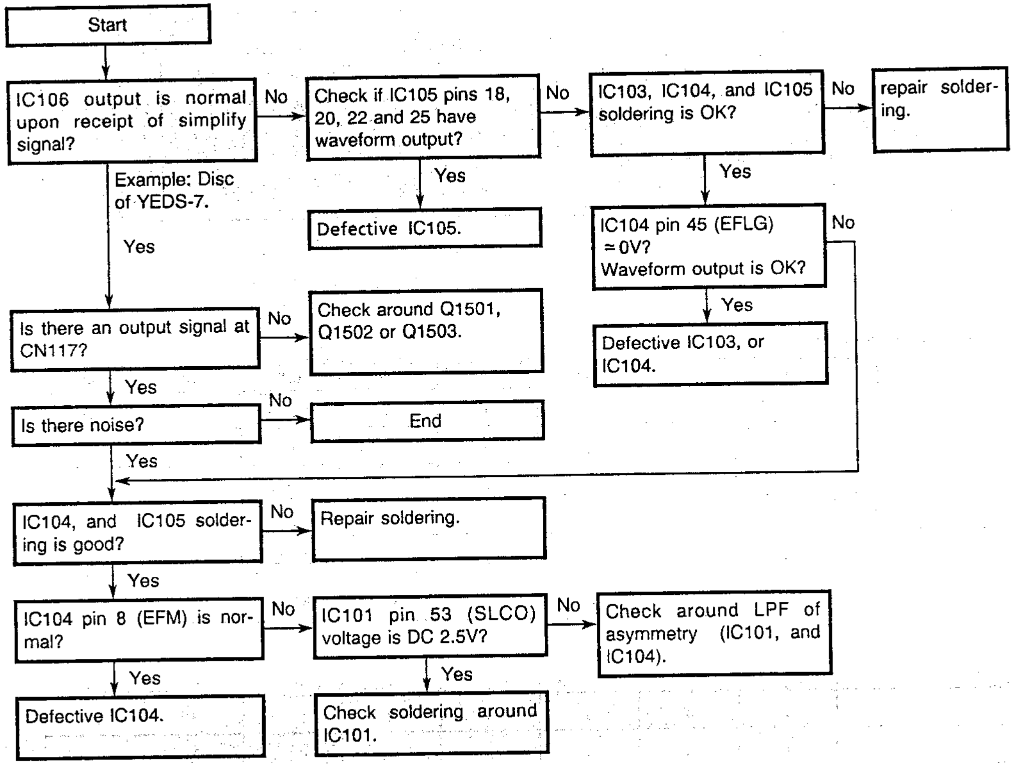
Operating conditions:

- Pickup return OK
- Normal eye pattern, RF signal OK
- Display OK


Start
IC106 output is normal upon receipt of simplify signal?
No
Check if IC105 pins 18, 20, 22 and 25 have waveform output?
No
IC103, IC104, and IC105 soldering is OK?
No
repair soldering.
Yes
Defective IC105.
Yes
IC104 pin 45 (EFLG) ≈ 0V? Waveform output is OK?
No
Yes
Defective IC103, or IC104.
Example: Disc of YEDS-7.
Yes
Is there an output signal at CN117?
No
Check around Q1501, Q1502 or Q1503.
Yes
Is there noise?
No
End
Yes
IC104, and IC105 soldering is good?
No
Repair soldering.
Yes
IC104 pin 8 (EFM) is normal?
No
IC101 pin 53 (SLCO) voltage is DC 2.5V?
No
Check around LPF of asymmetry (IC101, and IC104).
Yes
Defective IC104.
Yes
Check soldering around IC101.

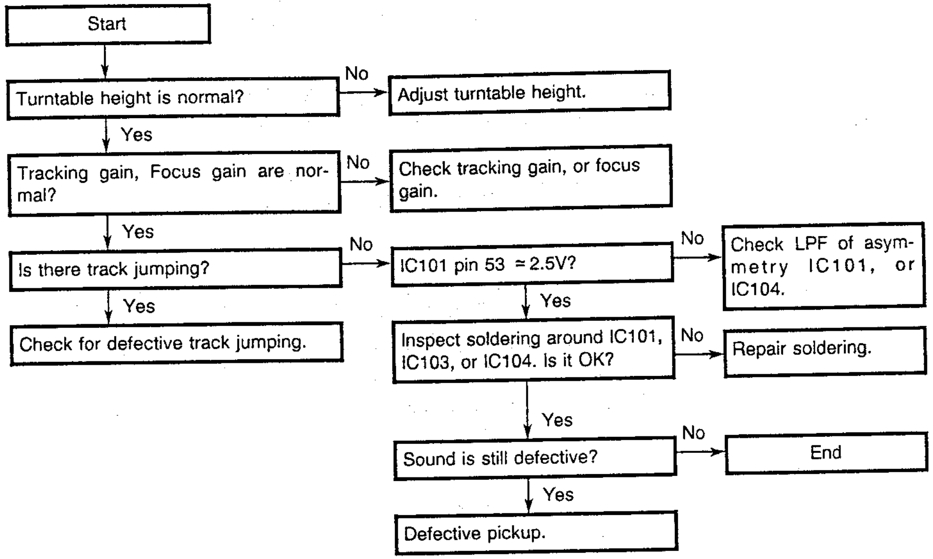
6. Defective Sound of CD (Sound is absent or distorted.)

Operating conditions:
- Pickup return OK
- Normal eye pattern, RF signal OK
- Display OK


Start
IC106 output is normal upon receipt of simplify signal?
No
Check if IC105 pins 18, 20, 22 and 25 have waveform output?
No
IC103, IC104, and IC105 soldering is OK?
No
repair soldering.
Example: Disc of YEDS-7.
Yes
Yes
Defective IC105.
Yes
IC104 pin 45 (EFLG) ≈ 0V? Waveform output is OK?
No
Yes
Defective IC103, or IC104.
Is there an output signal at CN117?
No
Check around Q1501, Q1502 or Q1503.
Yes
Is there noise?
No
End
Yes
IC104, and IC105 soldering is good?
No
Repair soldering.
Yes
IC104 pin 8 (EFM) is normal?
No
IC101 pin 53 (SLCO) voltage is DC 2.5V?
No
Check around LPF of asymmetry (IC101, and IC104).
Yes
Defective IC104.
Yes
Check soldering around IC101.

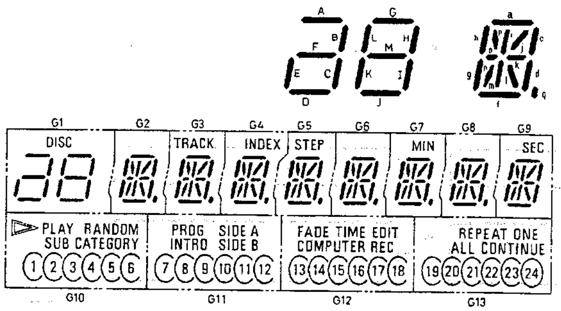
7. Defective Sound of CD (Sound is absent or distorted.)

Operating conditions:
- Pickup return OK
- Eye pattern defective
- Display OK


Start
Turntable height is normal?
No
Adjust turntable height.
Yes
Tracking gain, Focus gain are normal?
No
Check tracking gain, or focus gain.
Yes
Is there track jumping?
No
IC101 pin 53 ≈ 2.5V?
No
Check LPF of asymmetry IC101, or IC104.
Yes
Check for defective track jumping.
Yes
Inspect soldering around IC101, IC103, or IC104. Is it OK?
No
Repair soldering.
Yes
Sound is still defective?
No
End
Yes
Defective pickup.

FL (FLUORESCENT RAYS TUBE) BLOCK

FL101 1AD4T41A01400 (Display)


A
B
C
D
E
F
G
H
I
J
K
L
M
a
b
c
d
e
f
g
h
i
j
k
l
m
n
o
p
q
G1
G2
G3
G4
G5
G6
G7
G8
G9
DISC
TRACK
INDEX
STEP
MIN
SEC
PLAY RANDOM
SUB CATEGORY
PROG SIDE A
INTRO SIDE B
FADE TIME EDIT
COMPUTER REC
REPEAT ONE
ALL CONTINUE
1 2 3 4 5 6
7 8 9 10 11 12
13 14 15 16 17 18
19 20 21 22 23 24
G10
G11
G12
G13

Anode Grid Assignment

	S0	S1	S2	S3	S4	S5	S6	S7	S8	S9	SA	SB	SC	SD	SE	SF
G1	I	C	K	E	M	F	D	J	H	B	L	---	G	A	---	DISC
G2	m	l	n	d	o	k	g	f	h	p	j	i	c	a	q	---
G3	m	l	n	d	o	k	g	f	h	p	j	i	c	a	q	TRACK
G4	m	l	n	d	o	k	g	f	h	p	j	i	c	a	q	INDEX
G5	m	l	n	d	o	k	g	f	h	p	j	i	c	a	q	STEP
G6	m	l	n	d	o	k	g	f	h	p	j	i	c	a	q	---
G7	m	l	n	d	o	k	g	f	h	p	j	i	c	a	q	MIN
G8	m	l	n	d	o	k	g	f	h	p	j	i	c	a	q	---
G9	m	l	n	d	o	k	g	f	h	p	j	i	c	a	---	SEC
G10	1	2	3	4	5	6	▷ PLAY	RANDOM	1-C	2-C	3-C	4-C	5-C	6-C	SUB	CATEGORY
G11	7	8	9	10	11	12	PROG.	INTRO	7-C	8-C	9-C	10-C	11-C	12-C	SIDE A	SIDE B
G12	13	14	15	16	17	18	TIME	FADE	13-C	14-C	15-C	16-C	17-C	18-C	EDIT	COMPUTER REC
G13	19	20	21	22	23	24	REPEAT	ONE	19-C	20-C	21-C	22-C	23-C	24-C	ALL	CONTINUE

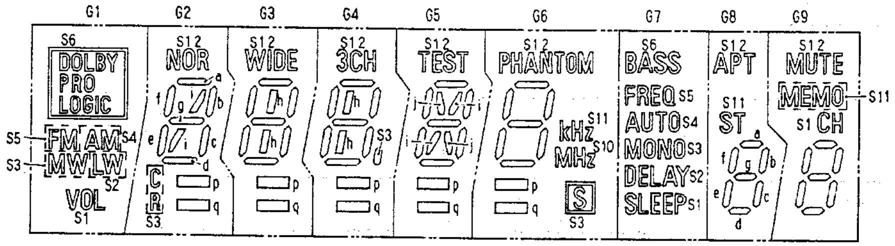
Pin Assignment

Pin No.	1	2	3	4	5	6	7	8	9	10
Assignment	F	F	NP	G1	G2	G3	G4	G5	G6	G7
Pin No.	11	12	13	14	15	16	17	18	19	20
Assignment	G8	G9	G10	G11	G12	G13	SF	SE	SD	SC
Pin No.	21	22	23	24	25	26	27	28	29	30
Assignment	SB	SA	S9	S8	S7	S6	S5	S4	S3	S2
Pin No.	31	32	33	34	35					
Assignment	S1	S0	NP	F	F					

: Filament G1 ~ G13: Grid S0 ~ SF: Anode NP: No pin

FL (FLUORESCENT RAYS TUBE) BLOCK

FL251 1AD4T41A01500 (Display)


G1
G2
G3
G4
G5
G6
G7
G8
G9
S6
DOLBY PRO LOGIC
S5
S3
FM AM
MW LW
S4
S2
VOL
S1
S12
NOR
WIDE
3CH
TEST
PHANTOM
a
b
c
d
e
f
g
h
i
j
p
q
C
R
kHz
MHz
S11
S10
S
BASS
FREQ S5
AUTO S4
MONO S3
DELAY S2
SLEEP S1
APT
S11
ST
MUTE
MEMO
S1 CH

Anode Grid Assignment

	G1	G2	G3	G4	G5	G6	G7	G8	G9
S1	VOL	q	q	q	q	q	SLEEP		CH
S2	LW	p	p	p	p	p	DELAY		
S3	MW	C R		(DOT)	j	S	MONO		
S4	AM	e	e	e	e	e	AUTO	e	e
S5	FM	g	g	g	g	g	FREQ	g	g
S6	DOLBY PRO LOGIC	f	f	f	f	a f	BASS	f	f
S7		b	b	b	b	b		b	b
S8		c	c	c	c	c		c	c
S9		d	d	d	d	d		d	d
S10		a	a	a	a	MHz		a	a
S11		i	h	h	i	kHz		ST	MEMO
S12		NOR	WIDE	3CH	TEST	PHANTOM		APT	MUTE

Pin Assignment

Pin No.	1	2	3	4	5	6	7	8	9	10
Assignment	F	F	NP	S10	S6	S7	S5	S4	S8	S9
Pin No.	11	12	13	14	15	16	17	18	19	20
Assignment	S11	S12	S3	S2	S1	NP	NP	G1	G2	G3
Pin No.	21	22	23	24	25					
Assignment	S1	S0	NP	F	F					

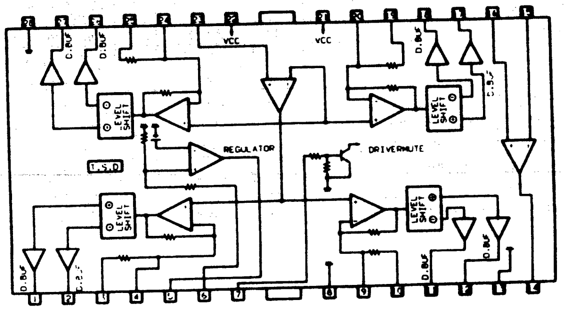
F: Filament G1 ~ G9: Grid S1 ~ S12: Anode NP: No pin

IC BLOCK DIAGRAM

IC101 LA9210M (Servo Signal Processor)

No.	Name	I / O	Function
1	NC		Non Connection
2	VEE		-5V
3	E	I	IV Convert Input (from Photo Diode E)
4	F	I	IV Convert Input (from Photo diode F)
5	FN	I	IV Converter Input
6	FO	O	IV Converter Output
7	TEAO	O	Tracking Error Amplifier Output
8	VREF2	I	Reference Voltage 2
9	VREF3	I	Reference Voltage 3
10	TES1	I	Test Input
11	ATSC	I	+ Input of Anti Shock Detect Amplifier
12	ATSC-	I	- Input of Anti Shock Detect Amplifier
13	TPA+	I	- Input of Tracking Pulse Amplifier
14	TPA-	I	+ Input of Tracking Pulse Amplifier
15	TPAO	O	Tracking Pulse Amplifier Output
16	TOFS	I	Input for Tracking Offset
17	THDS	I	Tracking Servo Hold Switch
18	TD+	I	Add the Track Jump Pulse
19	JPO	O	Track Jump Pulse Amplifier Output
20	SLEQ	I	Input for Sled Servo Equalizer
21	TDO	O	Tracking Actuator Coil Driver Output
22	FDO	O	Focus Actuator Coil Driver Output
23	FD-	I	Input for Focus Actuator Coil Driver
24	FSW	I	Focus Servo Switch
25	NC		Non Connection
26	FEAO	O	Focus Error Amplifier Output
27	FE+	I	+ Input of Focus Error Amplifier
28	FD+	I	+ Input of Focus Actuator Coil Driver
29	SPO	O	CLV Error Amplifier Output
30	SPO-	I	Input for Spindle Motor Driver
31	SPDO	O	Spindle Motor Driver Output
32	VEE		-5V
33	SLDO	O	Sled Motor Driver Output
34	SL-	I	- Input of Sled Motor Driver
35	SL+	I	+ Input of Sled Motor Driver
36	VCC		+5V
37	SLSW	I	Sled Servo Switch
38	DEFO	O	Defect Signal Output
39	FREQ	I	Input for VCO
40	DRF	O	Focusing Servo ON : High Level
41	NC		Non Connection
42	JP-	I	- Input of Track Jump Pulse Amplifier
43	JP+	I	+ Input of Track Jump Pulse Amplifier
44	THLD	I	Hold of Output Voltage of Tracking Servo
45	TGL	I	Tracking Gain Low
46	TOFF	I	Input For Off the Tracking Servo
47	TES	O	Tracking Error Signal
48	HFL	O	Detect Track Signal
49	FZD	O	Detect S Carve of Focus Error Signal
50	FOCS	I	Input For Off the Focus Servo
51	CLV-	I	- Input of CLV Error Amplifier
52	CLV+	I	+ Input of CLV Error Amplifier
53	SLCO	O	Slice Level Control Amplifier Output
54	EFMO	I	EFMO (RF) Signal
55	AI	I	EFMO (RF) Signal
56	VDD		+5V
57	PDO	I	+ Input of VCO Control Amplifier
58	PDO-	I	- Input of VCO Control Amplifier
59	VCOC	I	VCO Control Amplifier Output
60	VCOO	O	VCO Output
61	LF1	I	Input of Low Pass Filter
62	CLK	I	Clock
63	LASER	I	Laser Control Signal
64	66/60	I	Select of DSP LC7866 / LC7861
65	NC		Non Connection
66	DF2	I	Input for Defect Pulse width Control
67	DF1	I	Input for Defect Pulse width Control
68	PH3	O	Defect Detect Timing
69	BH	I	Track Detect Timing
70	PH	I	Focus Detect Timing
71	GND		Ground
72	RF SUM	O	RF SUM Amplifier Output
73	RFS-	O	IV Converter Output
74	LDO	O	Laser Diode ON
75	LDS	I	Input of Auto Laser Power Control
76	LDC	I	Input of Auto Laser Power Control
77	VDD		+5V
78	FIN1	I	IV Convert Input (From Photo Diode A+C)
79	FIN2	I	IV Convert Input (From Photo Diode B+D)
80	VREF1	I	Reference Voltage 1

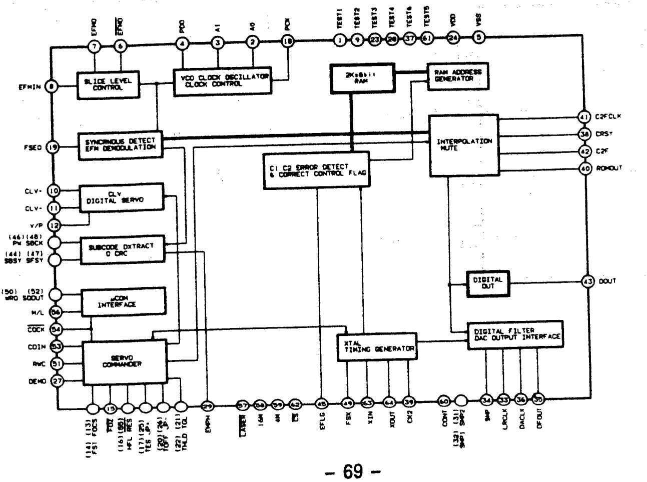
IC102 BA6296FP (Dual Motor & Actuator Coil Driver)


VCC
VCC
C.BUF
D.BUF
D.BUF
C.B.F
LEVEL SHIFT
LEVEL SHIFT
LEVEL SHIFT
LEVEL SHIFT
REGULATOR
DRIVE MUTE
T.S.D
D.BUF
C.B.F
D.BUF
D.BUF

IC BLOCK DIAGRAM

IC104 LA7867E (Digital Signal Processor)

No.	Name	I / O	Description
1	TEST1	I	For LSI testing. Not connected normally.
2	AO	O	Pin for inputting the VCO output built in the LA9210. (8,6436 MHz) PDO is the phase output of the EFM signal. Set it to raise the frequency at +.
3	AI	I	
4	PDO	O	
5	VSS		GND
6	EFMO	O	Input the HF signal of 1 to 2Vpp to EFMIN. EFM signals in mutually reverse phases are output from EFMO and EFMO via the amplification limiter.
7	EFMO	O	
8	EFMIN	I	
9	TEST2	I	For LSI testing. Not connected normally.
10	CLV^+	O	Disk motor control output.
11	CLV^-	O	
12	V / P	O	"H" output at the time of CLV rough servo, "L" output at the time of phase control.
13	FOCS	O	The focus servo turns off when FOCS is "H'. FST retracts the lens, and setting FOCS to "H" raises the lens gradually. FOCS is reset at the occurrence of FZD. Used for focus retracting.
14	FST	O	
15	FZD	I	
16	HFL	I	Kick pulses JP+ and JP - are generated according to the track jump command. The specified number of tracks (1, 4, 16 and 64) are jumped.
17	TES	I	
18	PCK	O	4,3218MHz PCK monitor pin.
19	FSEQ	O	This output goes "H" when SYNC (true FS) detected in the EFM signal agrees with the counter SYNC (interpolated FS). (one frame latch output)
20	TOFF	O	Kick pulses JP+ and JP - are generated according to the track jump command. The specified number of tracks (1, 4, 16, 64 and 128) are jumped.
21	TGL	O	
22	THLD	O	
23	TEST3	I	For LSI testing. Not connected normally
24	VDD		+5V
25	JP^+	O	Kick pulses JP+ and JP - are generated according to the track jump command. The specified number of tracks (1, 4, 16, 64 and 128) are jumped.
26	JP^-	O	
27	DEMO	I	For the set adjustment process. Sound generation function.
28	TEST4	I	For LSI testing. Not connected normally.
29	EMPH	O	De - emphasize is necessary when this output is "H".
30	NC	NC	
31	SMP2	O	Signal output to DAC, latch signal and L / R switching, sample hold signal.
32	SMP1	O	
33	LRCLK	O	
34	SMP	O	
35	DFOUT	O	
36	DACLK	O	
37	TEST6	O	For LSI testing. Not connected normally.
38	LRSY	O	
39	CK2	O	For outputting the CDROM signal.
40	ROMOUT	O	
41	C2FCLK	O	
42	C2F	O	
43	DOUT	O	DIGITAL OUT output.
44	SBSY	O	Synchronization single of subcode block.
45	EFLG	O	For C1, C2, signal and double correction monitor.
46	PW	O	SFSY is the synchronization signal of the subcode frame. Sending clock pulses 8 times to SBCK reads the subcodes P, Q, R, S, T, U, V and W.
47	SFSY	O	
48	SBCK	I	
49	FSX	O	7,35kHz synchronization signal output.
50	WRQ	O	WRQ goes "H" when subcode Q data passes CRC check. Detecting this externally and sending CQCK reads data from SQOUT. After setting RWC to "H" with the microcomputer, sending the CQCK command and data synchronously issues the command.
51	RWC	I	
52	SQOUT	O	
53	COIN	I	
54	CQCK	I	
55	RES	I	Set to "L" momentarily when the power is turned on.
56	M / L	I	Set M / L to "L" to obtain SQOUT data in the LSB first order.
57	LASER	O	Output pin that can be controlled by microcomputer serial control.
58	16M	O	16,9344MHz. Output pin.
59	4M	O	4,2336MHz. Output pin.
60	CONT	O	Output pin that can be controlled by microcomputer serial control.
61	TEST5	I	For LSI testing. Not connected normally.
62	CS	I	Chip select pin. The LC7867 is active when this pin is set to "L" (pull - sown resistor is incorporated).
63	XIN	I	16,9344MHz. Crystal oscillator connector pin.
64	XOUT	O	

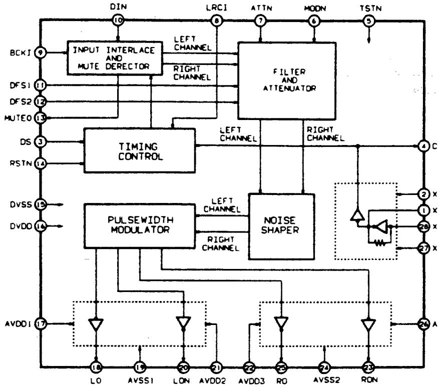

EFMO
EFMO
PDO
AI
AO
PCK
TEST1
TEST2
TEST3
TEST4
TEST6
TEST5
VDD
VSS
EFMIN
SLICE LEVEL CONTROL
VCO CLOCK OSCILLATOR CLOCK CONTROL
2K×8bit RAM
RAM ADDRESS GENERATOR
C2FCLK
CRSY
C2F
ROMOUT
FSEQ
SYNCRNOUS DETECT EFM DEMODULATION
INTERPOLATION MUTE
C1 C2 ERROR DETECT & CORRECT CONTROL FLAG
CLV+
CLV-
CLV DIGITAL SERVO
V/P
(46) (48) PW SBCK
(44) (47) SBSY SFSY
SUBCODE DXTRACT Q CRC
DIGITAL OUT
DOUT
(50) (52) WRQ SQOUT
μCOM INTERFACE
M/L
CQCK
COIN
RWC
DEMO
SERVO COMMANDER
XTAL TIMING GENERATOR
DIGITAL FILTER DAC OUTPUT INTERFACE
(14) (13) FST FOCS
FDZ
(16) (55) HFL RES
(17) (25) TES JP+
(20) (26) TOFF JP-
(22) (21) THLD TGL
EMPH
LASER
16M
4M
CS
EFLG
FSX
XIN
XOUT
CK2
CONT
(32) (31) SMP1 SMP2
SMP
LRCLK
DACLK
DFOUT

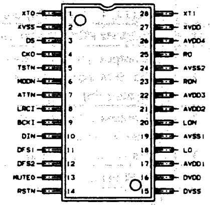
IC BLOCK DIAGRAM

IC105 SM5871AS (Digital to Analog (D/A) Converter for Digital Audio)

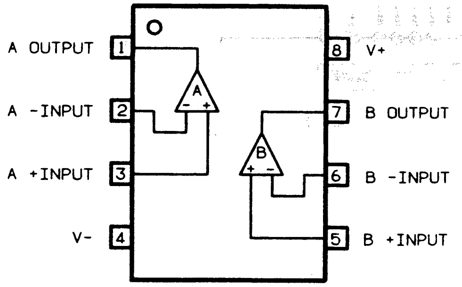
No.	Name	Function
1	XTO	Crystal oscillator output.
2	XVSS	Clock ground.
3	DS	Normal / double speed select input.
4	CKO	Clock input.
5	TSIN	Test input.
6	MODN	Mode select input.
7	ATTN	Soft mute control input
8	LRCI	Data sample rate clock input.
9	BCLI	Bit clock input.
10	DIN	Serial data input.
11	DSF1	De-emphasis select input.
12	DSF2	De-emphasis select input.
13	MUTEO	Mute detect output.
14	RSTN	Reset input.

No.	Name	Function
15	DVSS	Digital ground.
16	DVDD	5V digital supply
17	AVDD1	Analog supply 1.
18	LO	Left-channel positive PWM output.
19	AVSS1	Analog ground 1.
20	LON	Left-channel negative PWM output.
21	AVDD2	Analog supply 2.
22	AVDD3	Analog supply 3.
23	RON	Right-channel negative PWM output.
24	AVSS2	Analog ground 2.
25	RO	Right-channel positive PWM output.
26	AVDD4	Analog supply 4.
27	XVDD	Clock supply
28	XTI	Crystal oscillator or external clock input.

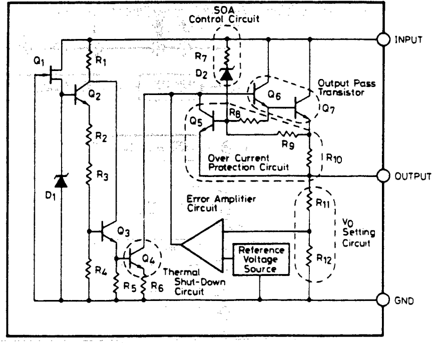

DIN
LRCI
ATTN
MODN
TSTN
BCKI
DFS1
DFS2
MUTEO
DS
RSTN
DVSS
DVDD
AVDD1
INPUT INTERLACE AND MUTE DETECTOR
LEFT CHANNEL
RIGHT CHANNEL
FILTER AND ATTENUATOR
TIMING CONTROL
PULSEWIDTH MODULATOR
NOISE SHAPER
CKO
XVSS
XTO
XTI
XVDD
AVDD4
LO
AVSS1
LON
AVDD2
AVDD3
RO
AVSS2
RON


XTO
XVSS
DS
CKO
TSTN
MODN
ATTN
LRCI
BCKI
DIN
DFS1
DFS2
MUTEO
RSTN
XTI
XVDD
AVDD4
RO
AVSS2
RON
AVDD3
AVDD2
LON
AVSS1
LO
AVDD1
DVDD
DVSS

IC106 NJM2100M
(Dual Operational Amplifier of Low Saturation Output)


A OUTPUT
A -INPUT
A +INPUT
V-
V+
B OUTPUT
B -INPUT
B +INPUT
1
2
3
4
5
6
7
8
A
B

IC151 NJM78L05A (3-Terminal Power Regulator)


SOA Control Circuit
INPUT
OUTPUT
GND
Q1
Q2
Q3
Q4
Q5
Q6
Q7
R1
R2
R3
R4
R5
R6
R7
R8
R9
R10
R11
R12
D1
D2
Output Pass Transistor
Over Current Protection Circuit
Error Amplifier Circuit
Reference Voltage Source
Thermal Shut-Down Circuit
Vo Setting Circuit

IC BLOCK DIAGRAM

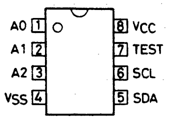
IC111 CXP82432-103Q (Micro Processor)

No.	Name	I / O	Function
1	WRQ	I	Inter Face to DSP (Sub-Q Request)
2	PHOTO	I	Sensor signal(disc-table stop) for set the disc-table position
3	LIMIT	I	Sensor signal(limit) for limit the pickup position
4	IR	I	Receive of Infrared Ray (Remocon) Signal
5			Not used (Ground)
6	P CONT	O	Power supply control for CD
7			Not used (open)
8	D MUTE	O	Mute Control Signal for Driver IC(IC102) (ON = High)
9	CD AF	O	Auto function signal(CD)
10	ROM CLK	O	Clock signal for control of EEPROM(IC112)
11	ROM SDA	I/O	Data signal for control of EEPROM(IC112)
12	SENS SW	O	Power supply control for LED of sensor (ON = High)
13	CQCK	O	Inter Face to DSP (Clock)
14	SQOUT	I	Inter Face to DSP (Sub-Q Data)
15	COIN	O	Inter Face to DSP (Command Data)
16	POWER IN	I	Power ON / OFF Signal (ON = High)
17	SYNCRO (C COPY)	O	Synchronize signal for tape deck mechanism is manually operated Not used (open)
18	FUNCT	I	Function signal (CD = High)
19	DUB IN	I	Dubbing signal (REC SW)
20	MEC0	I	Switch signal from mechanism
21	MEC1	I	Switch signal from mechanism
22	MEC2	I	Switch signal from mechanism
23	MEC3	I	Switch signal from mechanism
24	SENS0	I	Initialize key signal for EEPROM
25	SENS1	I	Sensor signal from mechanism
26	SENS2	I	Sensor signal from mechanism
27	SENS3	I	Sensor signal from mechanism
28	SENS4	I	Sensor signal from mechanism
29	SENS5	I	Sensor signal from mechanism
30	SENS6	I	Sensor signal from mechanism
31	SENS7	I	Sensor signal from mechanism
32	KEY0	I	Key signal
33	KEY1	I	Key signal
34	KEY2	I	Key signal
35			Not used (open)
36	SEL0	I	Selection Signal (Not used)
37	HI SPEED	O	Speed control signal for motor of disc-table
38	RESET	I	Initial reset
39	EXTAL		Clock Generator (4.19MHz)
40	XTAL		Clock Generator (4.19MHz)
41	VSS	-	Ground
42	TX		Not used (open)
43	TEX		Not used (Ground)
44	TURN +	O	Control signal for motor of disc-table
45	TURN -	O	Control signal for motor of disc-table
46	AVREF	-	Reference voltage for AD converter
47	AVSS		Ground for AD converter
48	F LOAD +	O	Control signal for motor of front loading

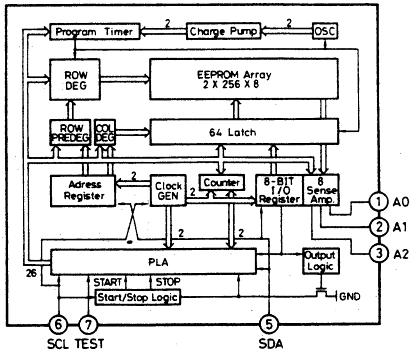
No.	Name	I / O	Function
49	F LOAD -	O	Control signal for motor of front loading
50	P LOAD +	O	Control signal for motor of play loading
51	P LOAD -	O	Control signal for motor of play loading
52	CHUCK +	O	Control signal for motor of chucking
53	CHUCK -	O	Control signal for motor of chucking
54	SHUT +	O	Control signal for motor of shutter
55	SHUT -	O	Control signal for motor of shutter
56	S0	O	Segment Signal output for FL Display
57	S1	O	Segment Signal output for FL Display
58	S2	O	Segment Signal output for FL Display
59	S3	O	Segment Signal output for FL Display
60	S4	O	Segment Signal output for FL Display
61	S5	O	Segment Signal output for FL Display
62	S6	O	Segment Signal output for FL Display
63	S7	O	Segment Signal output for FL Display
64	S8	O	Segment Signal output for FL Display
65	S9	O	Segment Signal output for FL Display
66	S10	O	Segment Signal output for FL Display
67	S11	O	Segment Signal output for FL Display
68	S12	O	Segment Signal output for FL Display
69	S13	O	Segment Signal output for FL Display
70	S14	O	Segment Signal output for FL Display
71	S15	O	Segment Signal output for FL Display
72			Not used (open)
73			Not used (open)
74			Not used (open)
75	T12	O	Digit Signal output for FL Display
76	T11	O	Digit Signal output for FL Display
77	T10	O	Digit Signal output for FL Display
78	T9	O	Digit Signal output for FL Display
79	T8	O	Digit Signal output for FL Display
80	T7	O	Digit Signal output for FL Display
81	T6	O	Digit Signal output for FL Display
82	T5	O	Digit Signal output for FL Display
83	T4	O	Digit Signal output for FL Display
84	T3	O	Digit Signal output for FL Display
85	T2	O	Digit Signal output for FL Display
86	T1	O	Digit Signal output for FL Display
87	T0	O	Digit Signal output for FL Display
88	VFDP	-	-30V
89	VDD	-	+5V
90	NC	-	Not used (open)
91	VSS	-	Ground
92	DSP RES	O	Reset control signal for DSP
93	SL +	O	Control signal for motor of sled
94	SL -	O	Control signal for motor of sled
95	CD MUTE	O	Mute control signal for analog
96	ATTN	O	Inter Face to DAC (Data)
97	MODN	O	Inter Face to DAC (Clock)
98			Not used (open)
99	RWC	O	Inter Face to DSP (Command Latch)
100	DRF	I	DRF Signal

IC BLOCK DIAGRAM

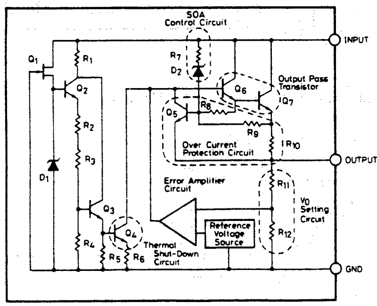
IC112 LE24C04S1 (4k-Bit (512Z8) Serial Access CMOS EEPROM)


A0 1
A1 2
A2 3
VSS 4
8 VCC
7 TEST
6 SCL
5 SDA

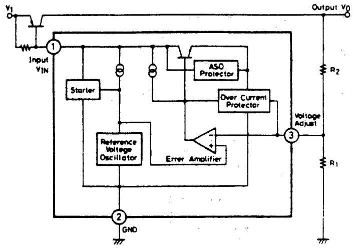
Pins	Name
A0·A1·A2	Address Input
VSS	GND
SDA	Serial Data
SCL	Serial Clock
TEST	Test Input
VCC	Power Source


Program Timer
2
Charge Pump
2
OSC
ROW DEG
EEPROM Array 2 X 256 X 8
ROW PREDEG
COL DEG
64 Latch
Adress Register
2
Clock GEN
2
Counter
8-BIT I/O Register
8 Sense Amp.
2
2
PLA
26
Output Logic
START
STOP
Start/Stop Logic
GND
1 A0
2 A1
3 A2
6 SCL
7 TEST
5 SDA

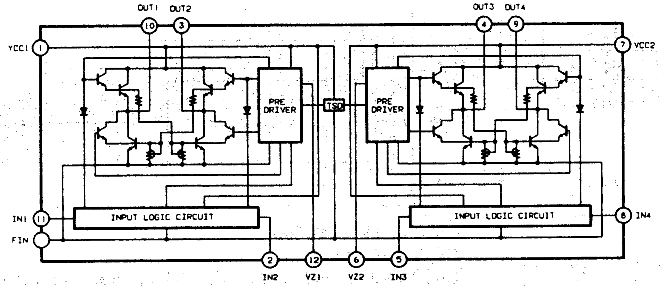
IC161 NJM7809FA (3-Terminal Power Regulator)


SOA Control Circuit
INPUT
Q1
R1
Q2
R7
D2
Output Pass Transistor
Q6
Q7
Q5
R8
R9
R2
R3
D1
Over Current Protection Circuit
R10
OUTPUT
Error Amplifier Circuit
R11
V0 Setting Circuit
Q3
Q4
Reference Voltage Source
R12
R4
R5
R6
Thermal Shut-Down Circuit
GND

IC162 M5237L (3-Terminal Power Regulator)

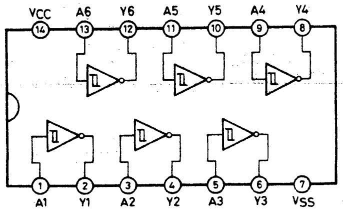

V1
Output V0
1
Input VIN
ASO Protector
Starter
Over Current Protector
R2
Voltage Adjust
3
Reference Voltage Oscillator
Error Amplifier
R1
2
GND

IC181,IC182,IC183 LB1648 (Motor Driver)


OUT1
OUT2
10
3
OUT3
OUT4
4
9
VCC1 1
7 VCC2
PRE DRIVER
TSD
PRE DRIVER
IN1 11
FIN
INPUT LOGIC CIRCUIT
INPUT LOGIC CIRCUIT
8 IN4
2 IN2
12 VZ1
6 VZ2
5 IN3

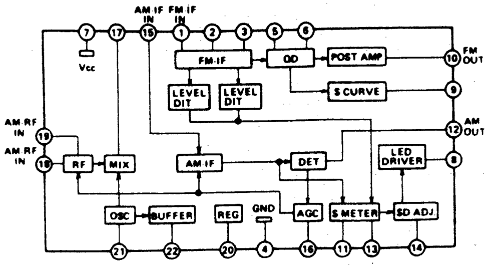
IN1	IN2	OUT1	OUT2	IN3	IN4	OUT3	OUT4
0	0	OPEN	OPEN	0	0	OPEN	OPEN
1	0	H	L	1	0	H	L
0	1	L	H	0	1	L	H
1	1	L	L	1	1	L	L

IC184,IC185 MC74HC14AN (Hex Schmitt Inverter)

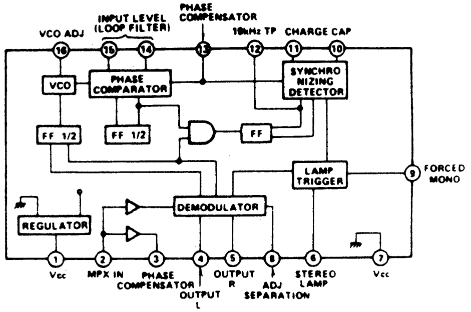

VCC 14
A6 13
Y6 12
A5 11
Y5 10
A4 9
Y4 8
1 A1
2 Y1
3 A2
4 Y2
5 A3
6 Y3
7 VSS

IC BLOCK DIAGRAM

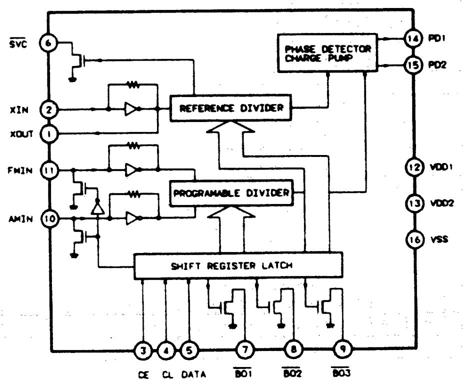
IC201 LA1265 (Tuner IF System)


AM IF IN
FM IF IN
7
17
15
1
2
3
5
6
Vcc
FM·IF
QD
POST AMP
10 FM OUT
LEVEL DIT
LEVEL DIT
S CURVE
9
AM RF IN 19
AM RF IN 18
12 AM OUT
RF
MIX
AM·IF
DET
LED DRIVER
8
OSC
BUFFER
REG
GND
AGC
S METER
SD ADJ
21
22
20
4
16
11
13
14

IC202 LA3361 (FM PLL Mpx. Stereo Demodulator)

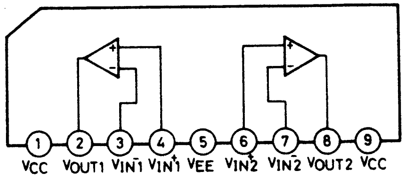

VCO ADJ
INPUT LEVEL (LOOP FILTER)
PHASE COMPENSATOR
19kHz TP
CHARGE CAP
16
15
14
13
12
11
10
VCO
PHASE COMPARATOR
SYNCHRO NIZING DETECTOR
FF 1/2
FF 1/2
FF
LAMP TRIGGER
9 FORCED MONO
REGULATOR
DEMODULATOR
1 Vcc
2 MPX IN
3 PHASE COMPENSATOR
4 OUTPUT L
5 OUTPUT R
8 ADJ SEPARATION
6 STEREO LAMP
7 Vcc

IC203 LM7001 (PLL Frequency Synthesizer)


$\overline{SVC}$ 6
XIN 2
XOUT 1
FMIN 11
AMIN 10
PHASE DETECTOR CHARGE PUMP
14 PD1
15 PD2
REFERENCE DIVIDER
PROGRAMABLE DIVIDER
12 VDD1
13 VDD2
16 VSS
SHIFT REGISTER LATCH
3 CE
4 CL
5 DATA
7 $\overline{BO1}$
8 $\overline{BO2}$
9 $\overline{BO3}$

No.	Name	I / O	Function
1	X OUT	O	Clock Generator (7.2MHz)
2	X IN	I	Clock Generator (7.2MHz)
3	CE	I	Control Signal from Micro Process IC (Chip Enable)
4	DATA	I	Control Signal from Micro Process IC (Serial Data)
5	CLK	I	Control Signal from Micro Process IC (Serial Clock)
6	SYC	O	Not Used (Open)
7	BO 1	O	Band Output (FM: Low)
8	BO 2	O	Band Output (AM[MW]: Low)
9	BO 3	O	Band Output (LW: Low)
10	AM IN	I	Local Oscillation Signal for AM(MW·LW)
11	FM IN	I	Local Oscillation Signal for FM
12	VDD 1	-	Power Supply (+5V)
13	VDD 2	-	Power Supply (+5V)
14	PD 1	O	PLL(Charge Pump) Output
15	PD 2	O	PLL(Charge Pump) Output
16	VSS	-	Ground (GND = 0V)

IC485 LA6458S (Function Switch)


1 VCC
2 VOUT1
3 VIN−1
4 VIN+1
5 VEE
6 VIN+2
7 VIN−2
8 VOUT2
9 VCC

BLOCK DIAGRAM

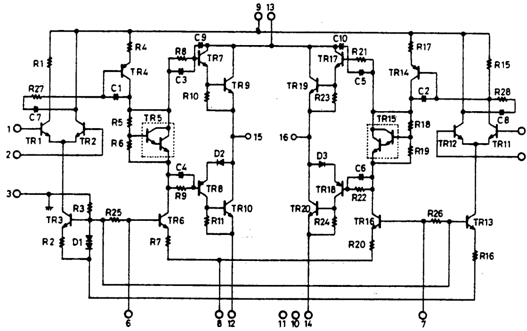
IC251 μP 75123GJ-024-5BG (Micro Processor for Tuner - Amplifier)

No.	Name	I/O	Description
1	KEY0	I	Key input 0
2	AVREF	I	Reference voltage input pin.
3	AVDD	-	Positive power supply pin.
4	VDD	-	Positive power supply pin.
5	VPP	-	Positive power supply pin.
6	X2	I	Main system clock oscillation crystal/ceramic connect pin. An external clock is input to X1 and an anti phase clock is input to X2.
7	X1	I	
8	IC	-	Not used (GND)
9	XT2	-	Subsystem clock oscillation crystal connect pin. An external clock is input to XT1 and XT2 is made open.
10	XT1	I	
11	VSS	-	GND potential pin.
12	DBPR01	O	Not used (open)
13	DBPR02	O	Not used (open)
14	DB3PN1	O	Not used (open)
15	DB3PN2	O	Not used (open)
16	SCRL1	O	Not used (open)
17	SCRL2	O	Not used (open)
	FUNCT	O	Auto function signal output
	S3	O	Segment signal output for FL display
	S10	O	Segment signal output for FL display
	S6	O	Segment signal output for FL display
	S7	O	Segment signal output for FL display
	S5	O	Segment signal output for FL display
	S4	O	Segment signal output for FL display
	S8	O	Segment signal output for FL display
	S9	O	Segment signal output for FL display
	S11	O	Segment signal output for FL display
	S12	O	Segment signal output for FL display
	S0	O	Segment signal output for FL display
	VDD	-	Power supply pin.
	VLOAD	-	FIP controller/driver pull-down resistor connect/power supply pin.
	S2	O	Segment signal output for FL display
	S1	O	Segment signal output for FL display
	H0	O	Not used (open)
	H1	O	Not used (open)
	H2	O	Not used (open)
	H3	O	Not used (open)
		O	Not used (open)
		O	Digital signal output for FL display
		O	Digital signal output for FL display
		O	Digital signal output for FL display
		O	Digital signal output for FL display
		O	Digital signal output for FL display
		O	Digital signal output for FL display
		O	Digital signal output for FL display
		O	Digital signal output for FL display
		O	Digital signal output for FL display

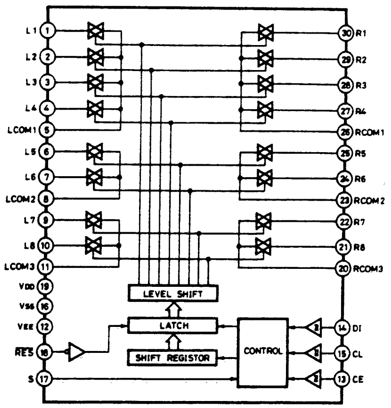
No.	Name	I/O	Description
48	VDD	-	Power supply pin.
49	993 / 994	I	TAD993 / TAD994 select
50	SO1	O	Not used (GND)
51	SCK1	I / O	Not used (GND)
52	TA-DUBB	O	Tape Dubbing output pin
53	CLK	I / O	Control signal for function select IC (Clock)
54	CE	I / O	Control signal for function select IC (Chip Enable)
55	DATE	I / O	Control signal for function select IC (Serial Data)
56		I / O	Not used
57	CDAF-I	I	CD AF IN signal
58	STBY	O	Standby LED drive signal
59	PORY	O	Power relay drive signal
60	SPRY	O	Speaker relay drive signal
61	DBASS	O	Dynamic BASS control signal
62	SURR	O	Surround control signal
63	20dBMUTE	O	20dB Muting control signal
64	A-MUTE	O	Analog Muting control signal
65	VSS	-	GND potential pin.
66	MONO	O	Monaural control signal
67	AUTO	O	FM Auto mode control signal
68	TU-MUTE	O	Tuner Muting control signal
69		I / O	Not used (GND)
70	DATE	I / O	Control signal for Tuner PLL IC (Serial Data)
71	CLK	I / O	Control signal for Tuner PLL IC (Clock)
72	CE	I / O	Control signal for Tuner PLL IC (Chip Enable)
73	PCON	O	Power Control signal for Tuner
74	VR-UP	O	Volume up control signal
75	VR-DWN	O	Volume down control signal
76	VOP	O	Voltage of power control drive signal
77	VR-LED	O	Volume LED control drive signal
78	DC-IN	I	Protect control signal for power AF amplifier
79	SD	I	Station detector control signal for Tuner
80	ST	I	Stereo control signal for Tuner
81	IR	I	Receiver infrared rays (Remocon) signal
82		I / O	Not used (open)
83		I / O	Not used (open)
84		I / O	Not used (open)
85	PDOWN	I	Power down detect input pin
86	RESET	I	System reset input pin.
87	AVSS	-	Not used (GND)
88	MUTE-SEL	I	Not used (GND)
89	NX-ADJ	I	Not used (GND)
90	USA-SEL	I	Not used (+5V)
91	DIST-SEL	I	Not used (GND)
92	KEY3	I	Key input 3
93	KEY2	I	Key input 2
94	KEY1	I	Key input 1

IC BLOCK DIAGRAM

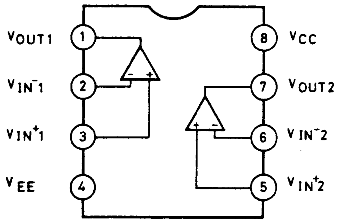
IC471 STK-401-090 (8-Stage Shift-and-Store)


9 13
R1
R27
C7
TR1
TR2
TR3
R2
D1
R3
R4
TR4
C1
R5
R6
TR5
R25
TR6
R7
R8
C9
TR7
C3
R10
R9
TR9
C4
TR8
D2
R11
TR10
15
16
TR19
R23
D3
TR18
R24
TR20
C10
TR17
R21
C5
TR14
C6
R22
TR16
R20
R17
C2
TR15
R18
R19
TR12
TR11
R15
R28
C8
R26
TR13
R16
1
2
3
4
5
6
7
8 12
11 10 14

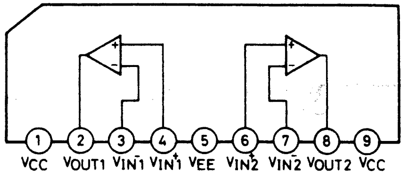
IC472 LC7821 (Function Switch)


L1 1
L2 2
L3 3
L4 4
LCOM1 5
L5 6
L6 7
LCOM2 8
L7 9
L8 10
LCOM3 11
VDD 19
VSS 16
VEE 12
RES 18
S 17
30 R1
29 R2
28 R3
27 R4
26 RCOM1
25 R5
24 R6
23 RCOM2
22 R7
21 R8
20 RCOM3
LEVEL SHIFT
LATCH
SHIFT REGISTOR
CONTROL
14 DI
15 CL
13 CE

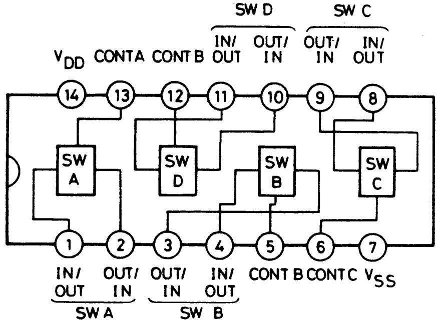
IC479 LA6458DS (Dual Ope-Amplifier)


VOUT1 1
VIN-1 2
VIN+1 3
VEE 4
8 VCC
7 VOUT2
6 VIN-2
5 VIN+2

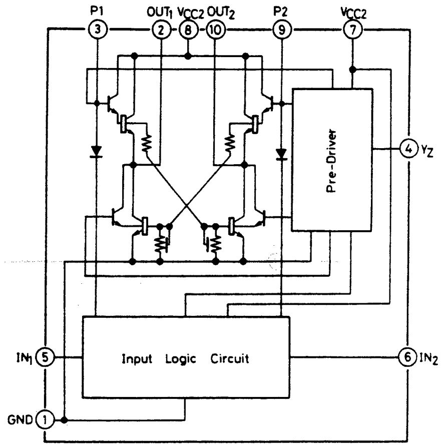
IC480,IC482,IC486 LA6458S (Function Switch)


1 2 3 4 5 6 7 8 9
VCC
VOUT1
VIN-1
VIN+1
VEE
VIN+2
VIN-2
VOUT2
VCC

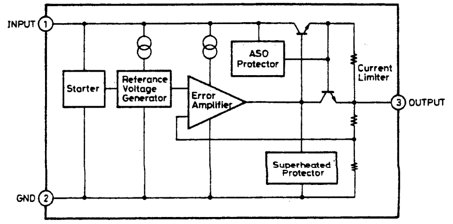
IC481 LC4966 (4-Lateral Switch)


SW D
SW C
VDD
CONTA
CONT B
IN/ OUT
OUT/ IN
OUT/ IN
IN/ OUT
14 13 12 11 10 9 8
SW A
SW D
SW B
SW C
1 2 3 4 5 6 7
IN/ OUT
OUT/ IN
OUT/ IN
IN/ OUT
CONT B
CONT C
VSS
SW A
SW B

IC483 LB1641 (Volume Motor Driver)


P1 3
OUT1 2
VCC2 8
OUT2 10
P2 9
VCC2 7
Pre-Driver
4 VZ
IN1 5
Input Logic Circuit
6 IN2
GND 1

IC490,IC492 L7805ML
IC493 L79M12ML
IC494,IC495,IC496 L7812ML (3-Terminal Ragulator)


INPUT 1
Starter
Referance Voltage Generator
Error Amplifier
ASO Protector
Current Limiter
3 OUTPUT
Superheated Protector
GND 2

IC BLOCK DIAGRAM

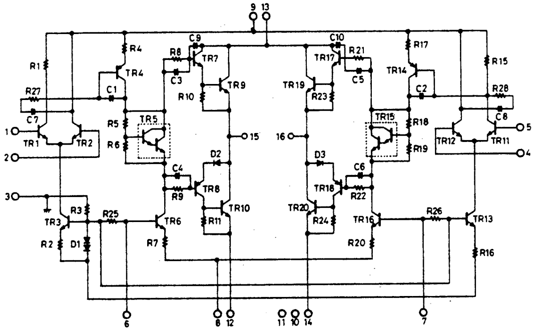
IC251 µPD75123GJ-024-5BG (Micro Processor for Tuner - Amplifier)

No.	Name	I / O	Description
1	KEY0	I	Key input 0
2	AVREF	I	Reference voltage input pin.
3	AVDD	-	Positive power supply pin.
4	VDD	-	Positive power supply pin.
5	VPP	-	Positive power supply pin.
6 7	X2 X1	I I	Main system clock oscillation crystal/ceramic connect pin. An external clock is input to X1 and an anti phase clock is input to X2.
8	IC	-	Not used (GND)
9 10	XT2 XT1	- I	Subsystem clock oscillation crystal connect pin. An external clock is input to XT1 and XT2 is made open.
11	VSS	-	GND potential pin.
12	DBPR01	O	Not used (open)
13	DBPR02	O	Not used (open)
14	DB3PN1	O	Not used (open)
15	DB3PN2	O	Not used (open)
16	SCRL1	O	Not used (open)
17	SCRL2	O	Not used (open)
18	FUNCT	O	Auto function signal output
19	S3	O	Segment signal output for FL display
20	S10	O	Segment signal output for FL display
21	S6	O	Segment signal output for FL display
22	S7	O	Segment signal output for FL display
23	S5	O	Segment signal output for FL display
24	S4	O	Segment signal output for FL display
25	S8	O	Segment signal output for FL display
26	S9	O	Segment signal output for FL display
27	S11	O	Segment signal output for FL display
28	S12	O	Segment signal output for FL display
29	S9	O	Segment signal output for FL display
30	VDD	-	Power supply pin.
31	VLOAD	-	FIP controller/driver pull-down resistor connect/power supply pin.
32	S2	O	Segment signal output for FL display
33	S1	O	Segment signal output for FL display
34	PH0	O	Not used (open)
35	PH1	O	Not used (open)
36	PH2	O	Not used (open)
37	PH3	O	Not used (open)
38	T9	O	Not used (open)
39	G1	O	Digital signal output for FL display
40	G2	O	Digital signal output for FL display
41	G3	O	Digital signal output for FL display
42	G4	O	Digital signal output for FL display
43	G5	O	Digital signal output for FL display
44	G6	O	Digital signal output for FL display
45	G7	O	Digital signal output for FL display
46	G8	O	Digital signal output for FL display
47	G9	O	Digital signal output for FL display

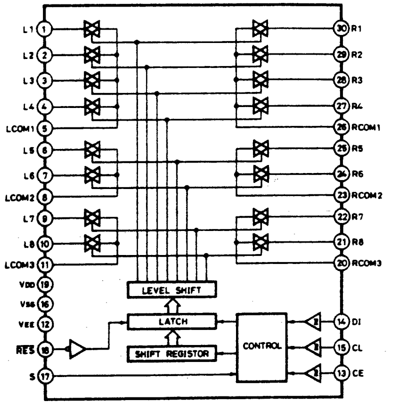
No.	Name	I / O	Description
48	VDD	-	Power supply pin.
49	993 / 994	I	TAD993 / TAD994 select
50	SO1	O	Not used (GND)
51	SCK1	I / O	Not used (GND)
52	TA-DUBB	O	Tape Dubbing output pin
53	CLK	I / O	Control signal for function select IC (Clock)
54	CE	I / O	Control signal for function select IC (Chip Enable)
55	DATE	I / O	Control signal for function select IC (Serial Data)
56		I / O	Not used
57	CDAF-I	I	CD AF IN signal
58	STBY	O	Standby LED drive signal
59	PORY	O	Power relay drive signal
60	SPRY	O	Speaker relay drive signal
61	DBASS	O	Dynamic BASS control signal
62	SURR	O	Surround control signal
63	20dBMUTE	O	20dB Muting control signal
64	A-MUTE	O	Analog Muting control signal
65	VSS	-	GND potential pin.
66	MONO	O	Monaural control signal
67	AUTO	O	FM Auto mode control signal
68	TU-MUTE	O	Tuner Muting control signal
69		I / O	Not used (GND)
70	DATE	I / O	Control signal for Tuner PLL IC (Serial Data)
71	CLK	I / O	Control signal for Tuner PLL IC (Clock)
72	CE	I / O	Control signal for Tuner PLL IC (Chip Enable)
73	PCON	O	Power Control signal for Tuner
74	VR-UP	O	Volume up control signal
75	VR-DWN	O	Volume down control signal
76	VOP	O	Voltage of power control drive signal
77	VR-LED	O	Volume LED control drive signal
78	DC-IN	I	Protect control signal for power AF amplifier
79	SD	I	Station detector control signal for Tuner
80	ST	I	Stereo control signal for Tuner
81	IR	I	Receiver infrared rays (Remocon) signal
82		I / O	Not used (open)
83		I / O	Not used (open)
84		I / O	Not used (open)
85	PDOWN	I	Power down detect input pin
86	RESET	I	System reset input pin.
87	AVSS	-	Not used (GND)
88	MUTE-SEL	I	Not used (GND)
89	NX-ADJ	I	Not used (GND)
90	USA-SEL	I	Not used (+ 5V)
91	DIST-SEL	I	Not used (GND)
92	KEY3	I	Key input 3
93	KEY2	I	Key input 2
94	KEY1	I	Key input 1

IC BLOCK DIAGRAM

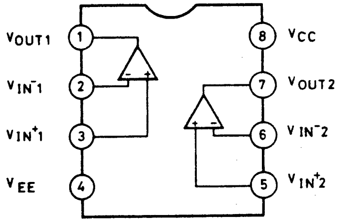
IC471 STK-401-090 (8-Stage Shift-and-Store)


9
13
1
2
3
15
16
5
4
6
8
12
11
10
14
7
TR1
TR2
TR3
TR4
TR5
TR6
TR7
TR8
TR9
TR10
TR11
TR12
TR13
TR14
TR15
TR16
TR17
TR18
TR19
TR20
C1
C2
C3
C4
C5
C6
C7
C8
C9
C10
D1
D2
D3

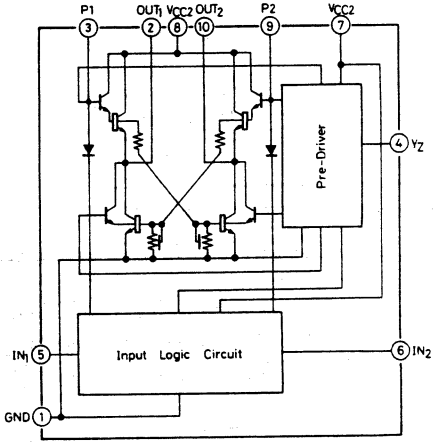
IC472 LC7821 (Function Switch)


L1
L2
L3
L4
LCOM1
L5
L6
LCOM2
L7
L8
LCOM3
VDD
VSS
VEE
RES
S
R1
R2
R3
R4
RCOM1
R5
R6
RCOM2
R7
R8
RCOM3
LEVEL SHIFT
LATCH
SHIFT REGISTOR
CONTROL
DI
CL
CE

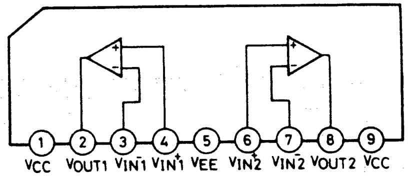
IC479 LA6458DS (Dual Ope-Amplifier)


VOUT1
VIN-1
VIN+1
VEE
VCC
VOUT2
VIN-2
VIN+2
1
2
3
4
5
6
7
8

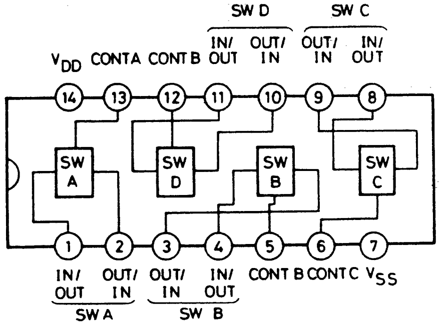
IC483 LB1641 (Volume Motor Driver)


P1
OUT1
VCC2
OUT2
P2
VCC2
3
2
8
10
9
7
Pre-Driver
4
VZ
IN1
5
Input Logic Circuit
6
IN2
GND
1

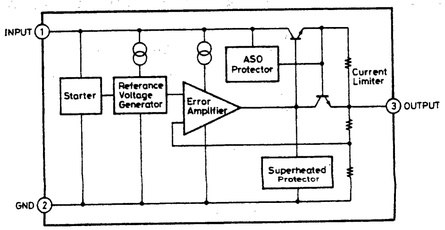
IC480,IC482,IC486 LA6458S (Function Switch)


1
2
3
4
5
6
7
8
9
VCC
VOUT1
VIN-1
VIN+1
VEE
VIN+2
VIN-2
VOUT2
VCC

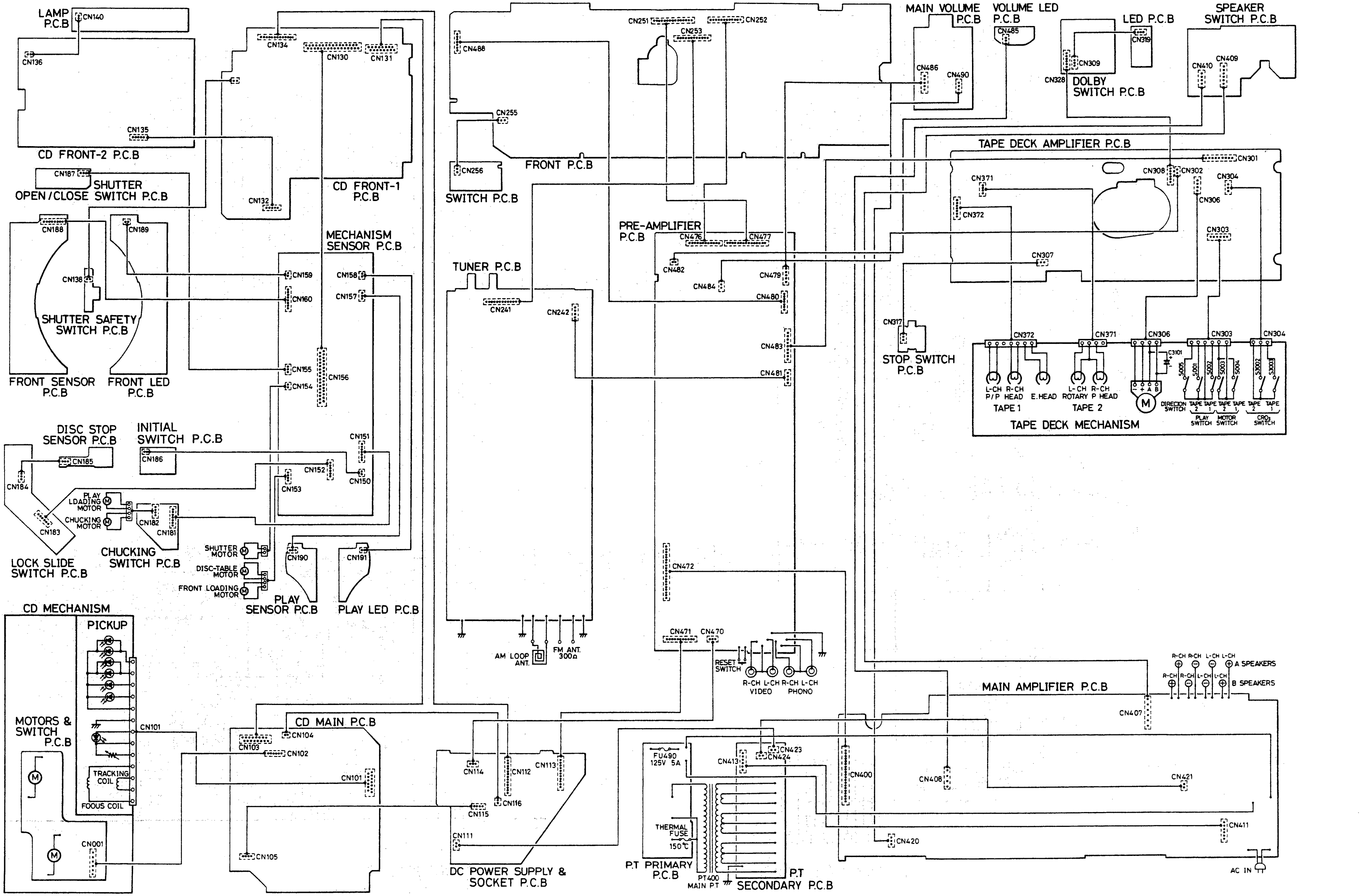
IC481 LC4966 (4-Lateral Switch)


SW D
SW C
VDD
CONTA
CONT B
IN/ OUT
OUT/ IN
OUT/ IN
IN/ OUT
14
13
12
11
10
9
8
SW A
SW D
SW B
SW C
1
2
3
4
5
6
7
IN/ OUT
OUT/ IN
OUT/ IN
IN/ OUT
CONT B
CONT C
VSS
SW A
SW B

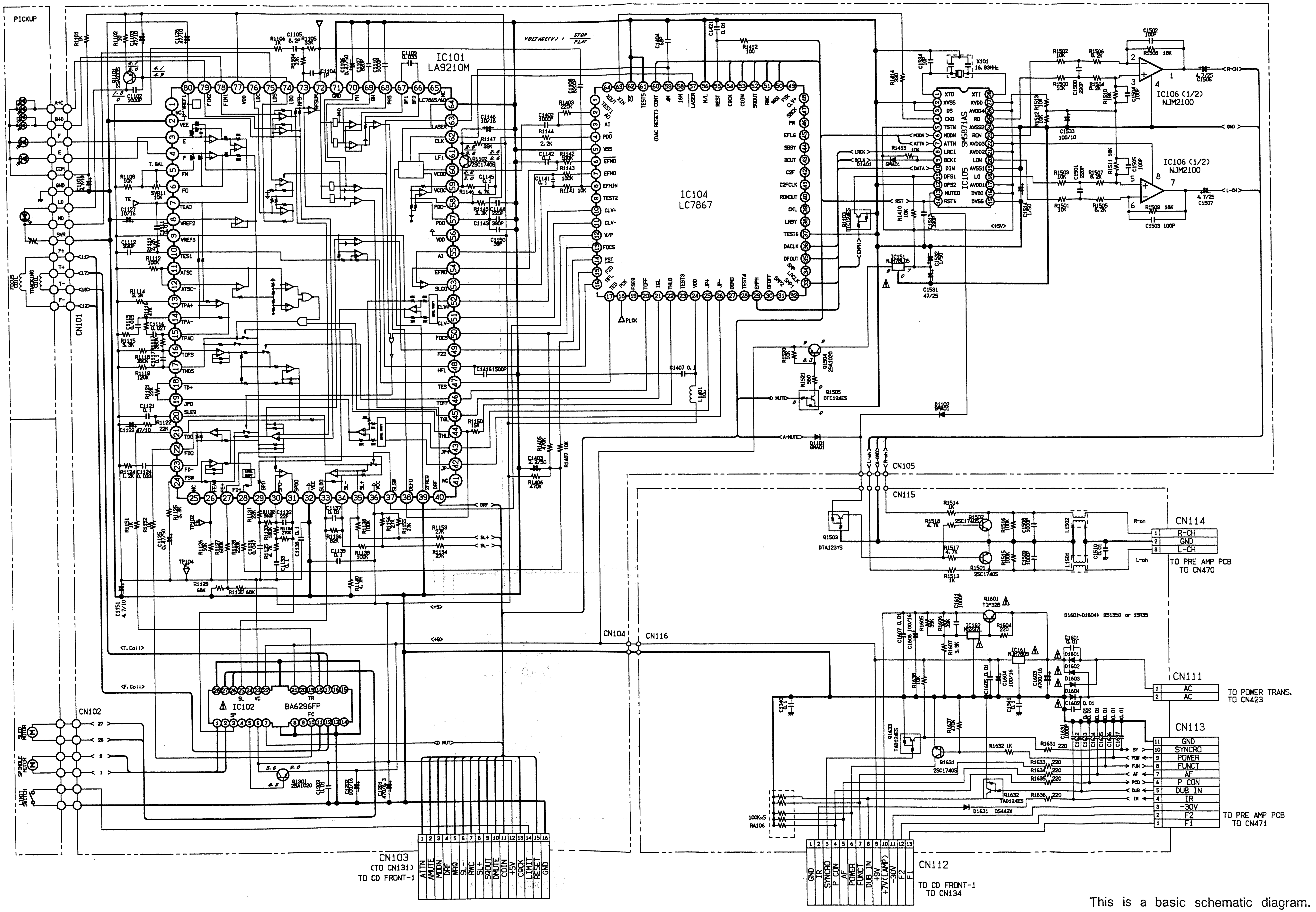
IC490,IC492 L7805ML
IC493 L79M12ML
IC494,IC495,IC496 L7812ML (3-Terminal Regulator)


INPUT
1
Starter
Referance Voltage Generator
Error Amplifier
ASO Protector
Current Limiter
Superheated Protector
3
OUTPUT
GND
2

WIRING CONNECTION

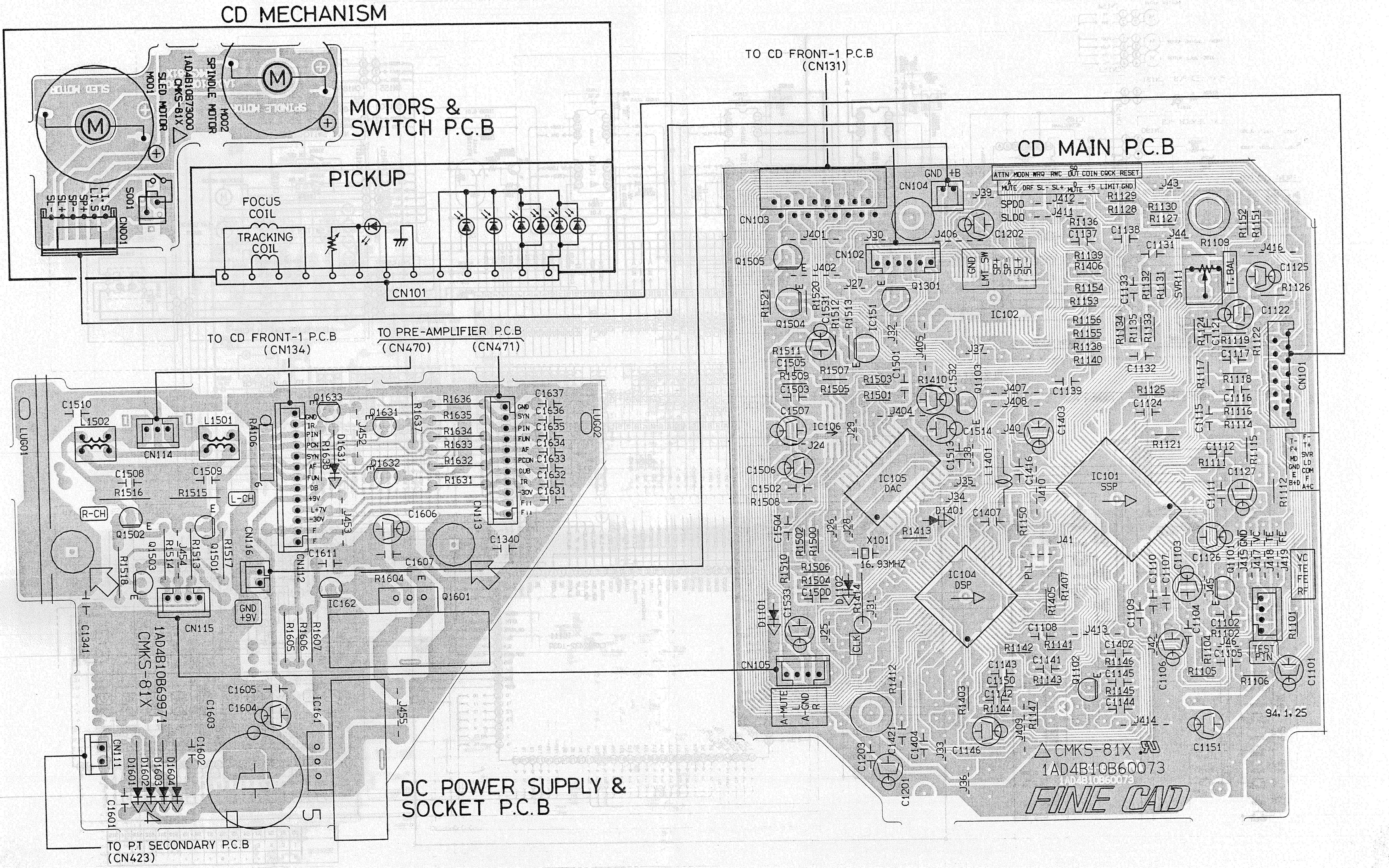

LAMP P.C.B
CN140
CN136
CN135
CD FRONT-2 P.C.B
CN187
SHUTTER OPEN/CLOSE SWITCH P.C.B
CN188
CN189
CN138
SHUTTER SAFETY SWITCH P.C.B
FRONT SENSOR P.C.B
FRONT LED P.C.B
CN134
CN130
CN131
CN132
CD FRONT-1 P.C.B
MECHANISM SENSOR P.C.B
CN159
CN160
CN158
CN157
CN155
CN154
CN156
DISC STOP SENSOR P.C.B
INITIAL SWITCH P.C.B
CN185
CN186
CN184
CN183
CN151
CN152
CN150
CN153
PLAY LOADING MOTOR
CHUCKING MOTOR
CN182
CN181
LOCK SLIDE SWITCH P.C.B
CHUCKING SWITCH P.C.B
SHUTTER MOTOR
DISC-TABLE MOTOR
FRONT LOADING MOTOR
CN190
CN191
PLAY SENSOR P.C.B
PLAY LED P.C.B
CD MECHANISM
PICKUP
MOTORS & SWITCH P.C.B
TRACKING COIL
FOCUS COIL
CN101
CN001
CD MAIN P.C.B
CN103
CN104
CN102
CN101
CN105
CN488
CN251
CN253
CN252
CN255
CN256
SWITCH P.C.B
FRONT P.C.B
TUNER P.C.B
CN241
CN242
AM LOOP ANT.
FM ANT. 300Ω
PRE-AMPLIFIER P.C.B
CN476
CN477
CN482
CN484
CN479
CN480
CN483
CN481
CN472
CN471
CN470
RESET SWITCH
R-CH L-CH R-CH L-CH
VIDEO PHONO
CN114
CN112
CN113
CN116
CN115
CN111
DC POWER SUPPLY & SOCKET P.C.B
MAIN VOLUME P.C.B
VOLUME LED P.C.B
CN485
CN486
CN490
LED P.C.B
CN319
CN309
CN328
DOLBY SWITCH P.C.B
SPEAKER SWITCH P.C.B
CN410
CN409
TAPE DECK AMPLIFIER P.C.B
CN301
CN308
CN302
CN304
CN306
CN371
CN372
CN303
CN307
CN317
STOP SWITCH P.C.B
CN372
CN371
CN306
CN303
CN304
C3101
L-CH R-CH P/P HEAD
E.HEAD
L-CH R-CH ROTARY P HEAD
TAPE 1
TAPE 2
S005
S001
S002
S003
S004
S3002
S3003
DIRECTION SWITCH
TAPE 2
TAPE 1
TAPE 2
TAPE 1
PLAY SWITCH
MOTOR SWITCH
CrO2 SWITCH
TAPE DECK MECHANISM
R-CH R-CH L-CH L-CH
A SPEAKERS
B SPEAKERS
MAIN AMPLIFIER P.C.B
CN407
CN400
CN408
CN421
CN411
CN420
AC IN
FU490 125V 5A
CN413
CN423
CN424
THERMAL FUSE 150°C
P.T PRIMARY P.C.B
PT400 MAIN PT
P.T SECONDARY P.C.B

SCHEMATIC DIAGRAM (CD MAIN)

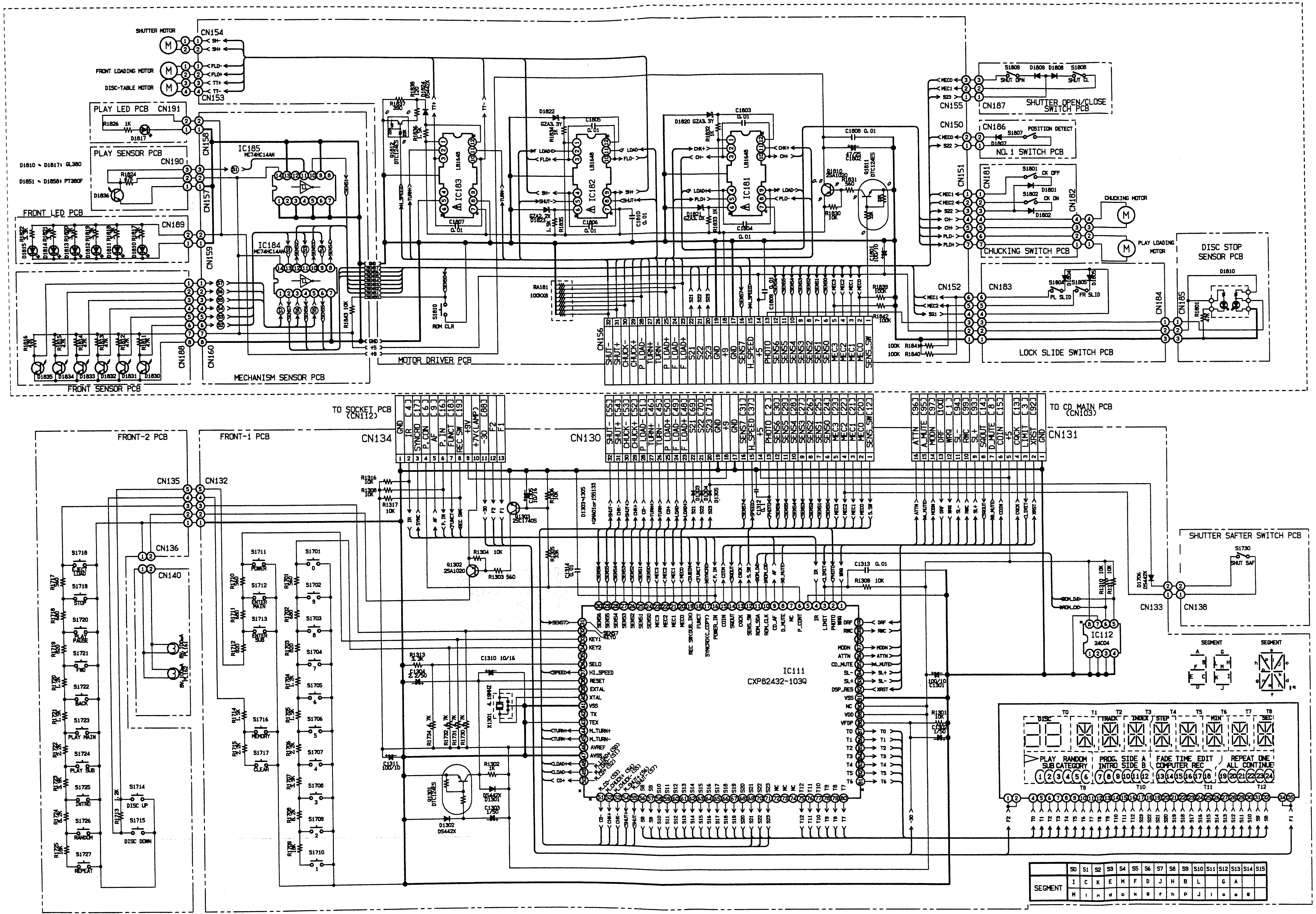

PICKUP
IC101
LA9210M
IC104
LC7867
IC105
SM5871AS
IC106 (1/2)
NJM2100
IC102
BA6296FP
VOLTAGE(V) : STOP/PLAY
X101
16.93MHz
CN101
CN102
CN104
CN105
CN115
CN116
CN114
R-CH
GND
L-CH
TO PRE AMP PCB
TO CN470
CN111
AC
AC
TO POWER TRANS.
TO CN423
CN113
GND
SYNCRO
POWER
FUNCT
AF
P CON
DUB IN
IR
-30V
F2
F1
TO PRE AMP PCB
TO CN471
CN103
(TO CN131)
TO CD FRONT-1
ATTN
AMUTE
MODN
DRF
WRQ
SL-
RWC
SL+
SQOUT
DMUTE
COIN
+5V
CQCK
LIMIT
RESET
GND
CN112
GND
IR
SYNCRO
P CON
AF
POWER
FUNCT
DUB IN
+9V
+7V(LAMP)
-30V
F2
F1
TO CD FRONT-1
TO CN134
FOCUS COIL
TRACKING COIL
SLED MOTOR
SPINDLE MOTOR
LIMIT SWITCH
Q1501 2SC1740S
Q1502 2SC1740S
Q1503 DTA123YS
Q1504 2SA1020
Q1505 DTC124ES
Q1601 TIP32B
Q1631 2SC1740S
Q1632 TAD124ES
Q1633 TAD124ES
Q1101 2SB1035
Q1102 2SC1740S
Q1201 2SA1020
D1601~D1604: DS135D or 1SR35
D1631 DS442X
IC151 NJM78L05
IC161 NJM7809
IC162 KIA7812
100K×5 RA106

This is a basic schematic diagram.

WIRING DIAGRAM (CD MAIN)


CD MECHANISM
MOTORS & SWITCH P.C.B
SLED MOTOR
SPINDLE MOTOR
M001
M002
1AD4B10B73000
CMKS-81X
S001
CN001
SL- SL+ SP- SP+ L1.5 L1.5
PICKUP
FOCUS COIL
TRACKING COIL
CN101
TO CD FRONT-1 P.C.B (CN131)
CD MAIN P.C.B
TO CD FRONT-1 P.C.B (CN134)
TO PRE-AMPLIFIER P.C.B (CN470) (CN471)
CN114
CN115
CN116
CN112
CN113
CN111
L1501
L1502
LU601
LU602
R-CH
L-CH
GND +9V
1AD4B10B69971
CMKS-81X
IC161
IC162
Q1601
DC POWER SUPPLY & SOCKET P.C.B
TO P.T SECONDARY P.C.B (CN423)
GND +B
CN104
CN103
CN102
CN101
CN105
IC101 SSP
IC102
IC104 DSP
IC105 DAC
IC106
X101 16.93MHZ
PLL
CLK
TEST PIN
SVR11
T.BAL
A+MUTE L A-GND R
VC TE FE RF
94.1.25
CMKS-81X
1AD4B10B60073
FINE CAD

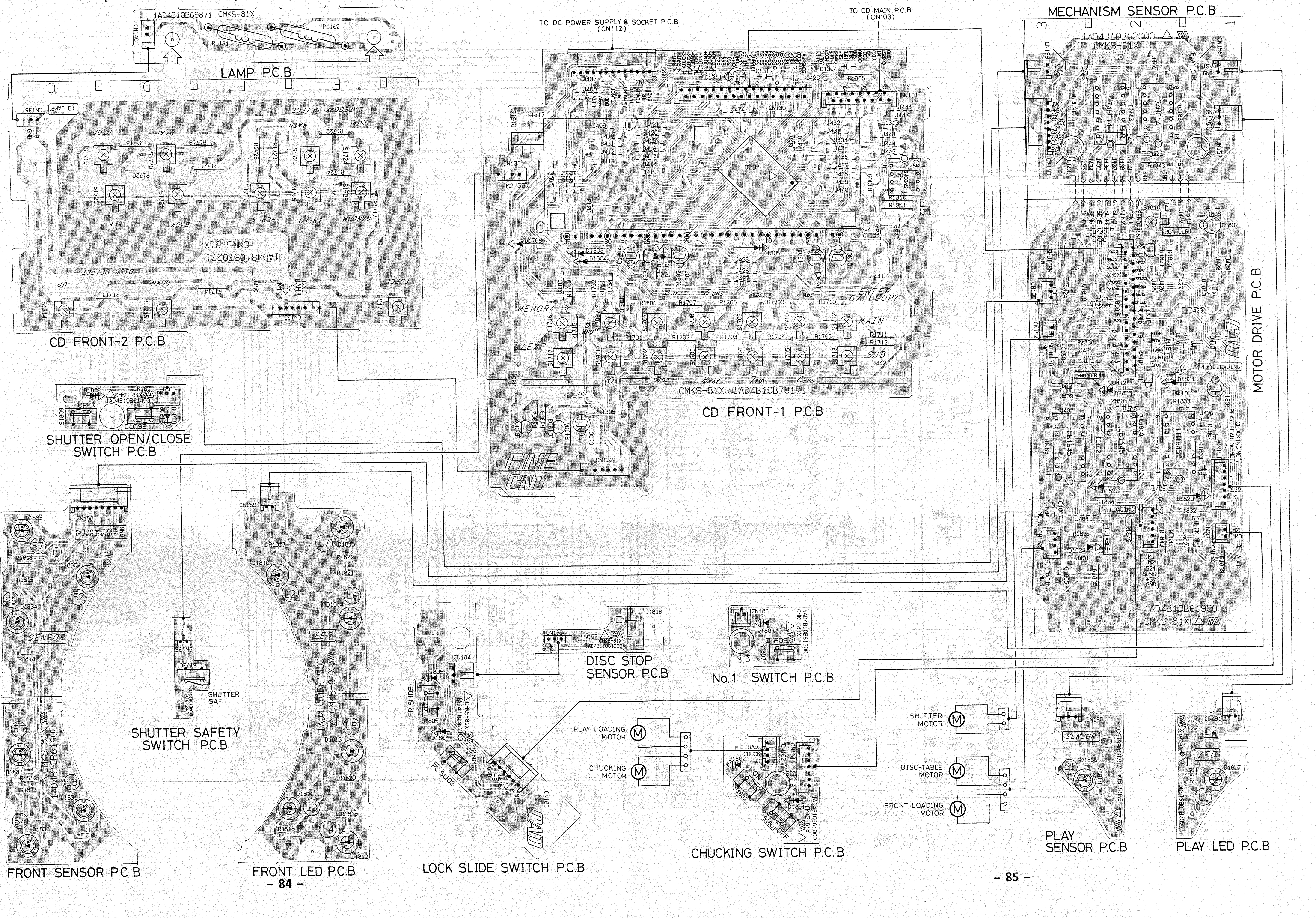
SCHEMATIC DIAGRAM (CD MECHANISM)


SHUTTER MOTOR
FRONT LOADING MOTOR
DISC-TABLE MOTOR
CN154
CN153
PLAY LED PCB
CN191
PLAY SENSOR PCB
CN190
FRONT LED PCB
CN189
FRONT SENSOR PCB
CN188
CN158
CN157
CN159
CN160
IC185 MC74HC14AN
IC184 MC74HC14AN
MECHANISM SENSOR PCB
MOTOR DRIVER PCB
IC183 LB1648
IC182 LB1648
IC181 LB1648
D1810 ~ D1817: GL380
D1851 ~ D1858: PT380F
CN156
CN155
CN187
SHUTTER OPEN/CLOSE SWITCH PCB
CN150
CN186
NO. 1 SWITCH PCB
CN151
CN181
CN182
CHUCKING MOTOR
CHUCKING SWITCH PCB
PLAY LOADING MOTOR
DISC STOP SENSOR PCB
CN152
CN183
CN184
CN185
LOCK SLIDE SWITCH PCB
TO SOCKET PCB (CN112)
CN134
CN130
CN131
TO CD MAIN PCB (CN103)
FRONT-2 PCB
FRONT-1 PCB
CN135
CN132
CN136
CN140
SHUTTER SAFTER SWITCH PCB
CN133
CN138
IC111 CXP82432-103Q
IC112 24C04
X1301 4.19MHZ
SEGMENT
PLAY RANDOM
SUB CATEGORY
PROG. SIDE A INTRO SIDE B
FADE TIME EDIT COMPUTER REC
REPEAT ONE ALL CONTINUE
DISC TRACK INDEX STEP MIN SEC

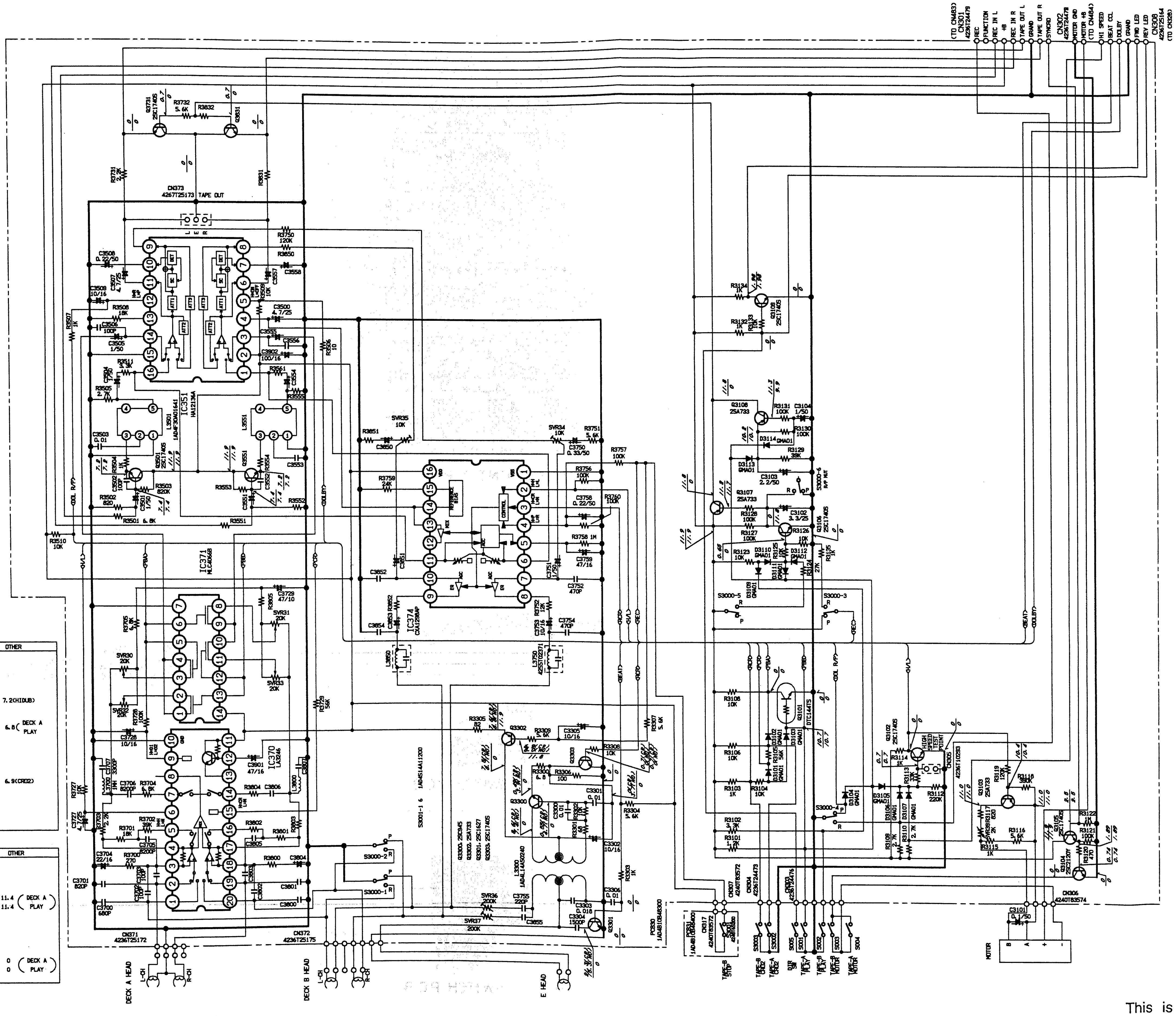
	S0	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	S13	S14	S15
SEGMENT	I	C	K	E	M	F	D	J	H	B	L		G	A		
	M	l	n	d	o	k	g	f	h	p	j	l	o	e	g	

This is a basic schematic diagram.

WIRING DIAGRAM (CD MECHANISM)


LAMP P.C.B
1AD4B10B69871 CMKS-81X
CN140
PL161
PL162
CD FRONT-2 P.C.B
1AD4B10B70271
CMKS-81X
CN136
TO LAMP
STOP
PLAY
SUB
MAIN
CATEGORY SELECT
F.F
BACK
REPEAT
INTRO
RANDOM
DISC SELECT
UP
DOWN
EJECT
CN135
TO DC POWER SUPPLY & SOCKET P.C.B
(CN112)
TO CD MAIN P.C.B
(CN103)
CN134
CN130
CN131
CN133
CN132
IC111
IC112
MEMORY
CLEAR
ENTER
CATEGORY
MAIN
SUB
CMKS-81X 1AD4B10B70171
CD FRONT-1 P.C.B
FINE
CAD
MECHANISM SENSOR P.C.B
1AD4B10B62000
CMKS-81X
CN159
CN158
CN157
CN160
FRONT
PLAY SIDE
74HC14
ROM CLR
SHUTTER SW
CN155
CN154
CN153
CN152
CN151
CN150
SHUTTER MOT
PLAY.LOADING
CHUCKING MOT
PLAY.LOADING MOT
F.LOADING
T.TABLE
F.LOADING MOT
T.TABLE MOT
LB1645
MOTOR DRIVE P.C.B
1AD4B10B61900
CMKS-81X
SHUTTER OPEN/CLOSE SWITCH P.C.B
CN187
1AD4B10B61400
OPEN
CLOSE
FRONT SENSOR P.C.B
CN186
SENSOR
1AD4B10B61600
CMKS-81X
SHUTTER SAFETY SWITCH P.C.B
SHUTTER SAF
FRONT LED P.C.B
CN189
LED
1AD4B10B61500
CMKS-81X
LOCK SLIDE SWITCH P.C.B
CN184
CN183
FR SLIDE
PL SLIDE
DISC STOP SENSOR P.C.B
CN185
1AD4B10B61200
No.1 SWITCH P.C.B
CN186
1AD4B10B61300
D POS
PLAY LOADING MOTOR
CHUCKING MOTOR
CHUCKING SWITCH P.C.B
1AD4B10B61000
LOAD
CHUCK
ON
OFF
SHUTTER MOTOR
DISC-TABLE MOTOR
FRONT LOADING MOTOR
PLAY SENSOR P.C.B
CN190
SENSOR
PLAY LED P.C.B
CN191
LED
1AD4B10B61700

SCHEMATIC DIAGRAM (DECK)


(TO CN483)
CN301
4236T24479
REC
FUNCTION
REC IN L
+B
REC IN R
TAPE OUT L
GRAND
TAPE OUT R
SYNCRO
CN302
4236T24478
MOTOR GND
MOTOR +B
(TO CN484)
HI SPEED
BEAT CL
DOLBY
GRAND
PRO LED
REV LED
CN308
4236T25164
(TO CN328)
CN373
4267T25173 TAPE OUT
IC351
HA12136A
IC371
MLC4066B
IC374
CXA1288AP
IC370
LA3246
CN371
4236T25172
CN372
4236T25175
DECK A HEAD
L-CH
R-CH
DECK B HEAD
E HEAD
SVR35
10K
SVR34
10K
SVR30
20K
SVR31
20K
SVR33
20K
SVR36
200K
SVR37
200K
S3000-5
S3000-3
S3000-4
S3000-2
S3000-1
S3001-1 6
CN307
4240T83572
CN304
4236T24473
CN303
4236T24476
CN306
4240T83574
PC330
MOTOR
TAPE-B STOP
TAPE-A
TAPE-B
DIR SW
TAPE-A PLAY
TAPE-B MOTOR
TAPE-A MOTOR
HIGH SPEED TEST POINT

IC351

NO.	PLAY	REC	OTHER
1	6.0	6.0	
2	11.9	11.9	
3	6.0	6.0	
4	6.0	6.0	
5	0	0	11.6(DOLBY ON)
6	6.0	6.0	
7	1.25	1.25	
8	6.0	6.0	
9	6.0	6.0	
10	1.25	1.25	
11	6.0	6.0	
12	0	10.6	0(DUB)
13	0.92	0.92	
14	6.0	6.0	
15	0	0	
16	6.0	6.0	

IC374

NO.	PLAY	REC	OTHER
1	0	0	
2	0	0	11.8(HIDUB)
3	0	0	10.0(CRO2)
4	5.9	0	
5	0	0	0.66 (ALC DOING)
6	6.0	6.0	
7	6.0	6.0	
8	5.8	5.8	
9	5.8	5.8	
10	6.0	6.0	
11	6.0	6.0	
12	6.1	6.1	
13	6.0	6.0	
14	6.0	6.0	
15	1.2	1.2	
16	11.9	11.9	

COMMON USE

Q3101
DTC144TS OR BA1L4Z
Q3102, 3105, 3106, 3303, 3501, 3551
Q3731, 3831
2SC1740S OR 2SC2785 OR 2SC2458
Q3103, 3107, 3108, 3302
2SA1015 OR 2SA733
Q3104
2SC2120 OR 2SC2001
Q3300
2SC1815 OR 2SC945
D3101, 3102, 3103, 3104, 3105, 3106
D3107, 3108, 3110, 3111, 3112, 3113
D3114
GMA01 OR 1SS133 OR 1SS176
IC371
MLC4066B OR TC4066BP
OR BU4066B OR UPD4066BC
IC351
HA12136AT OR HA12136A

IC370

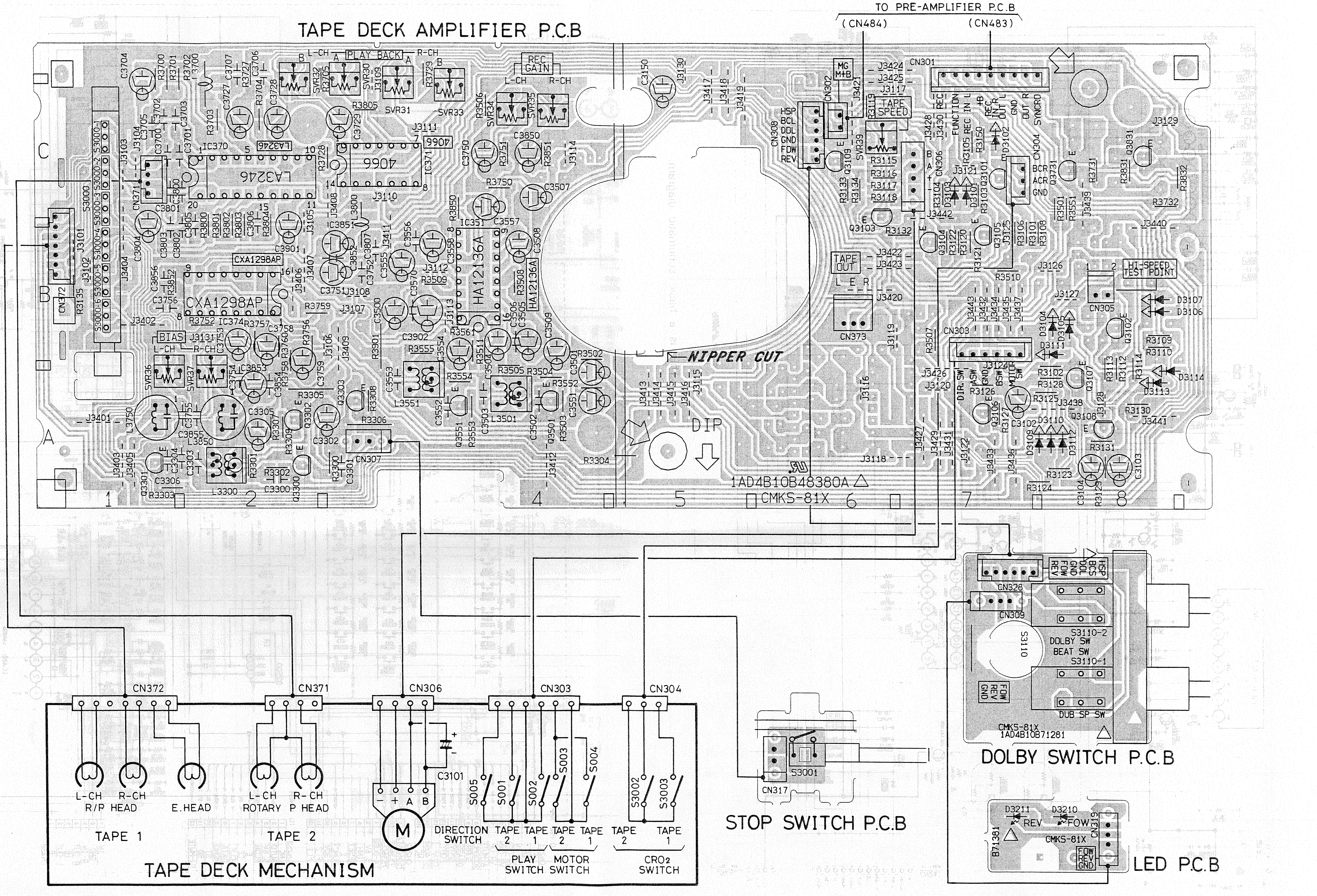
NO.	PLAY	REC	OTHER
1	0	0	
2	0	0	
3	0.58	0.58	
4	4.7	4.7	
5	4.7	4.7	
6	0	0	7.2(HIDUB)
7	0	0	
8	4.8	4.7	6.8(DECK A PLAY
9	0	0	
10	0	0	
11	11.9	11.9	
12	11.9	11.9	
13	11.2	11.1	
14	0	0	
15	0.62	0.62	6.9(CRO2)
16	4.7	4.7	
17	4.7	4.7	
18	0.58	0.58	
19	0	0	
20	0	0	

IC371

NO.	PLAY	REC	OTHER
1	4.7	4.7	
2	4.7	4.7	
3	4.7	4.7	
4	4.7	4.7	
5	0	0	11.4 (DECK A PLAY)
6	0	0	11.4
7	0	0	
8	4.7	4.7	
9	4.7	4.7	
10	4.7	4.7	
11	4.7	4.7	
12	10.2	10.2	0 (DECK A PLAY)
13	10.2	10.2	0
14	11.9	11.9	

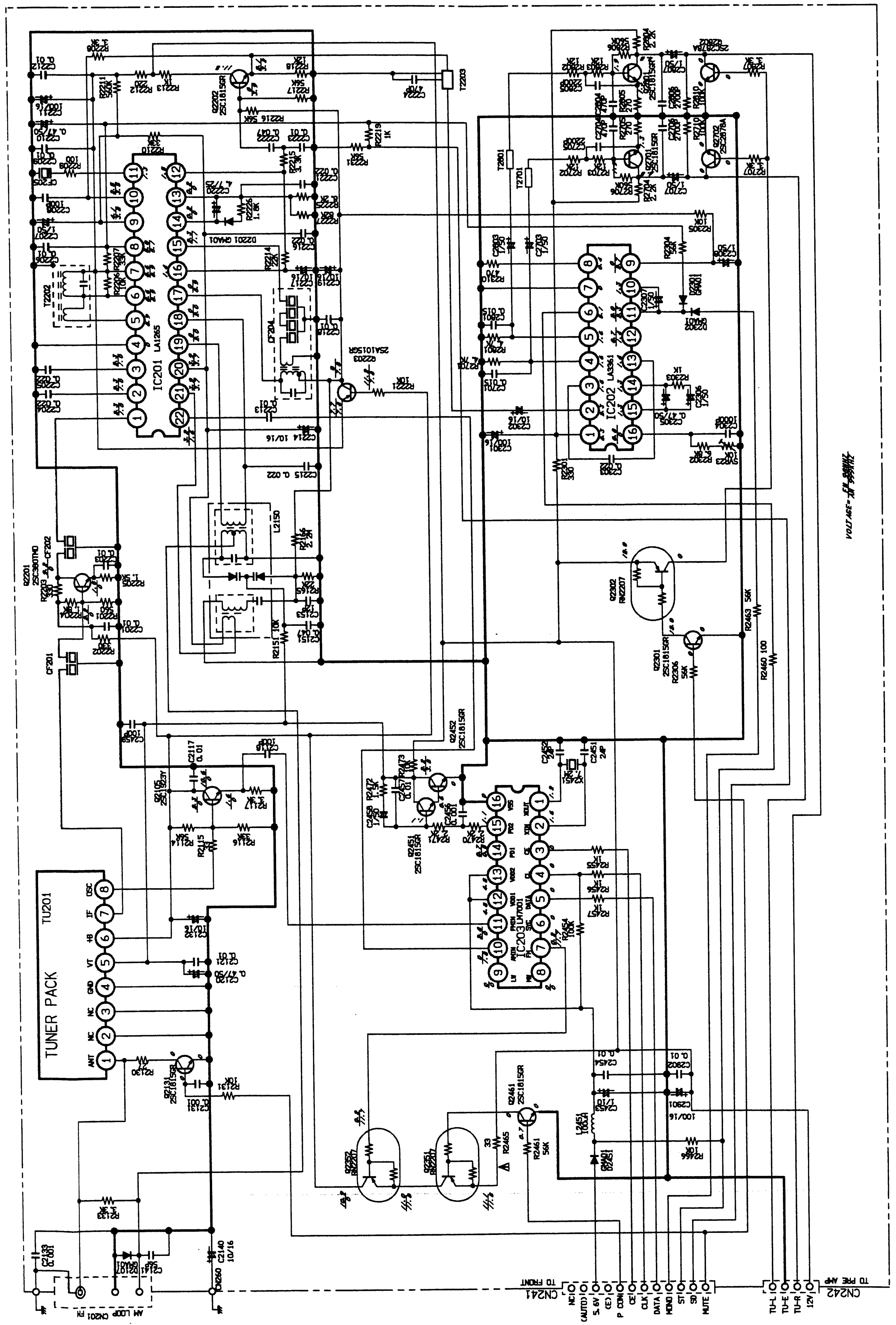
This is a basic schematic diagram.

WIRING DIAGRAM (DECK)



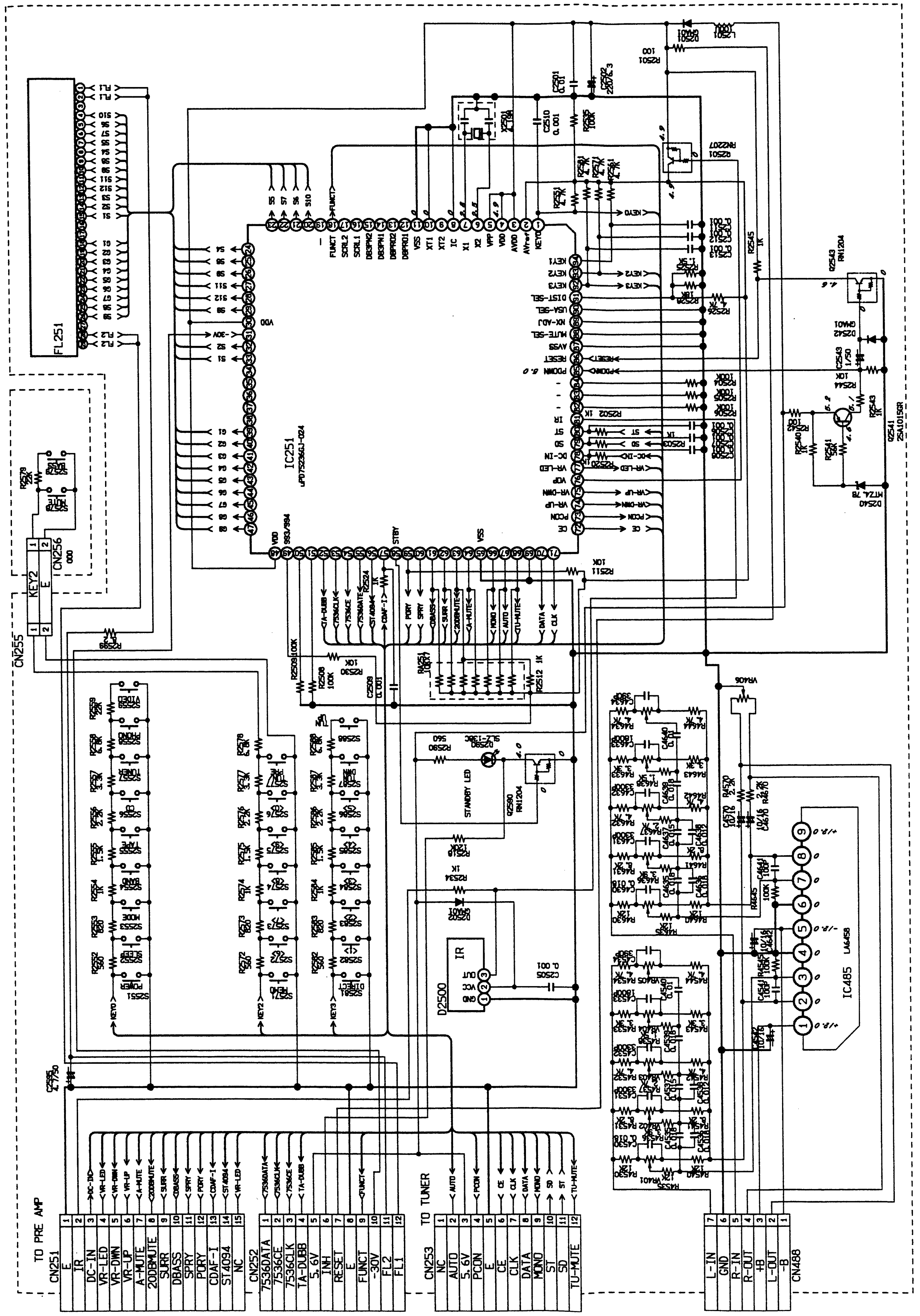
TAPE DECK AMPLIFIER P.C.B
TO PRE-AMPLIFIER P.C.B
(CN484)
(CN483)
PLAY BACK
L-CH
R-CH
REC GAIN
TAPE SPEED
TAPE OUT
BIAS
HI-SPEED TEST POINT
NIPPER CUT
DIP
LA3246
4066
CXA1298AP
HA12136A
IC370
IC371
IC374
IC351
IC3851
CN301
CN302
CN303
CN304
CN305
CN306
CN307
CN308
CN371
CN372
CN373
MG M+B
HSP
BCL
DDL
GND
FDW
REV
REC
FUNCTION
REC IN L
REC IN R
OUT L
OUT R
SYNCRO
BCR
ACR
DIR.SW
ASW
BSW
MOTOR SW
SVR30
SVR31
SVR32
SVR33
SVR34
SVR35
SVR36
SVR37
SVR39
L3300
L3500
L3551
L3750
L3800
L3850
S3000
1AD4B10B48380A
CMKS-81X
1
2
3
4
5
6
7
8
A
B
C
CN372
CN371
CN306
CN303
CN304
L-CH
R-CH
R/P HEAD
E.HEAD
TAPE 1
L-CH
R-CH
ROTARY
P HEAD
TAPE 2
C3101
M
DIRECTION SWITCH
S005
S001
S002
S003
S004
TAPE 2
TAPE 1
TAPE 2
TAPE 1
PLAY SWITCH
MOTOR SWITCH
S3002
S3003
TAPE 2
TAPE 1
CRO2 SWITCH
TAPE DECK MECHANISM
S3001
CN317
STOP SWITCH P.C.B
CN326
CN309
S3110
S3110-2
DOLBY SW
BEAT SW
S3110-1
DUB SP SW
FDW
REV
GND
CMKS-81X
1AD4B10B71281
DOLBY SWITCH P.C.B
D3211
D3210
REV
FOW
CN319
B71381
CMKS-81X
LED P.C.B

SCHEMATIC DIAGRAM (TUNER)


TUNER PACK
TU201
IC201 LA1265
IC202
IC203 LM7001
CN241
TO FRONT
NC
(AUTO)
5.6V
(E)
P CON
CE
CLK
DATA
MONO
ST
SD
MUTE
CN242
TO PRE AMP
TU-L
TU-E
TU-R
12V
AM LOOP CN201 FM

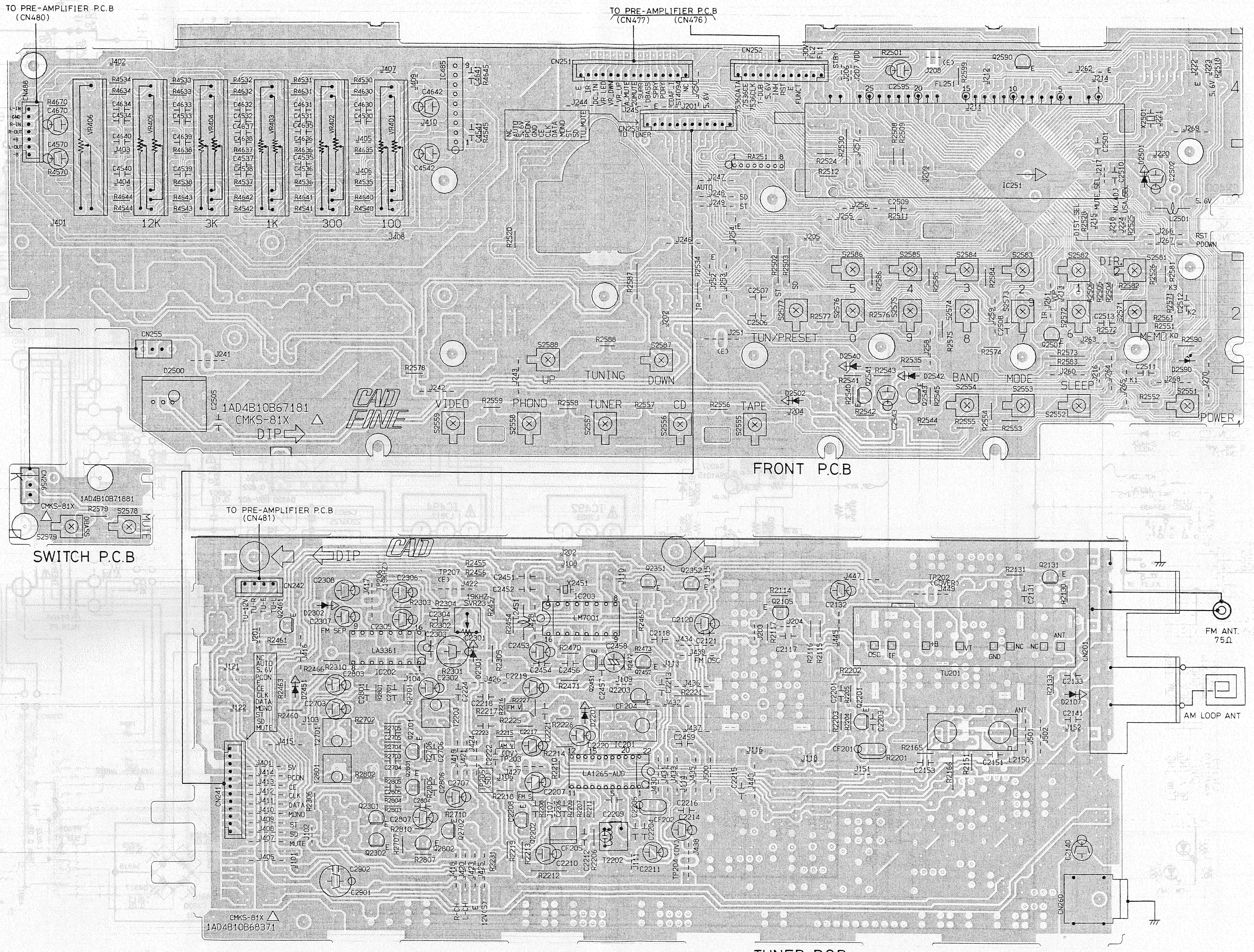
This is a basic schematic diagram.

SCHEMATIC DIAGRAM (FRONT)


FL251
IC251
CN255
CN256
KEY2
D2500
IR
IC485 LA6458
TO PRE AMP
CN251
E
DC-IN
VR-LED
VR-DWN
VR-UP
A-MUTE
20DBMUTE
SURR
DBASS
SPRY
PORY
CDAF-I
ST4094
NC
CN252
7536DATA
7536CE
7536CLK
TA-DUBB
5.6V
INH
RESET
E
FUNCT
-30V
FL2
FL1
TO TUNER
CN253
NC
AUTO
5.6V
PCON
E
CE
CLK
DATA
MONO
ST
SD
TU-MUTE
CN488
L-IN
GND
R-IN
R-OUT
+B
L-OUT
-B

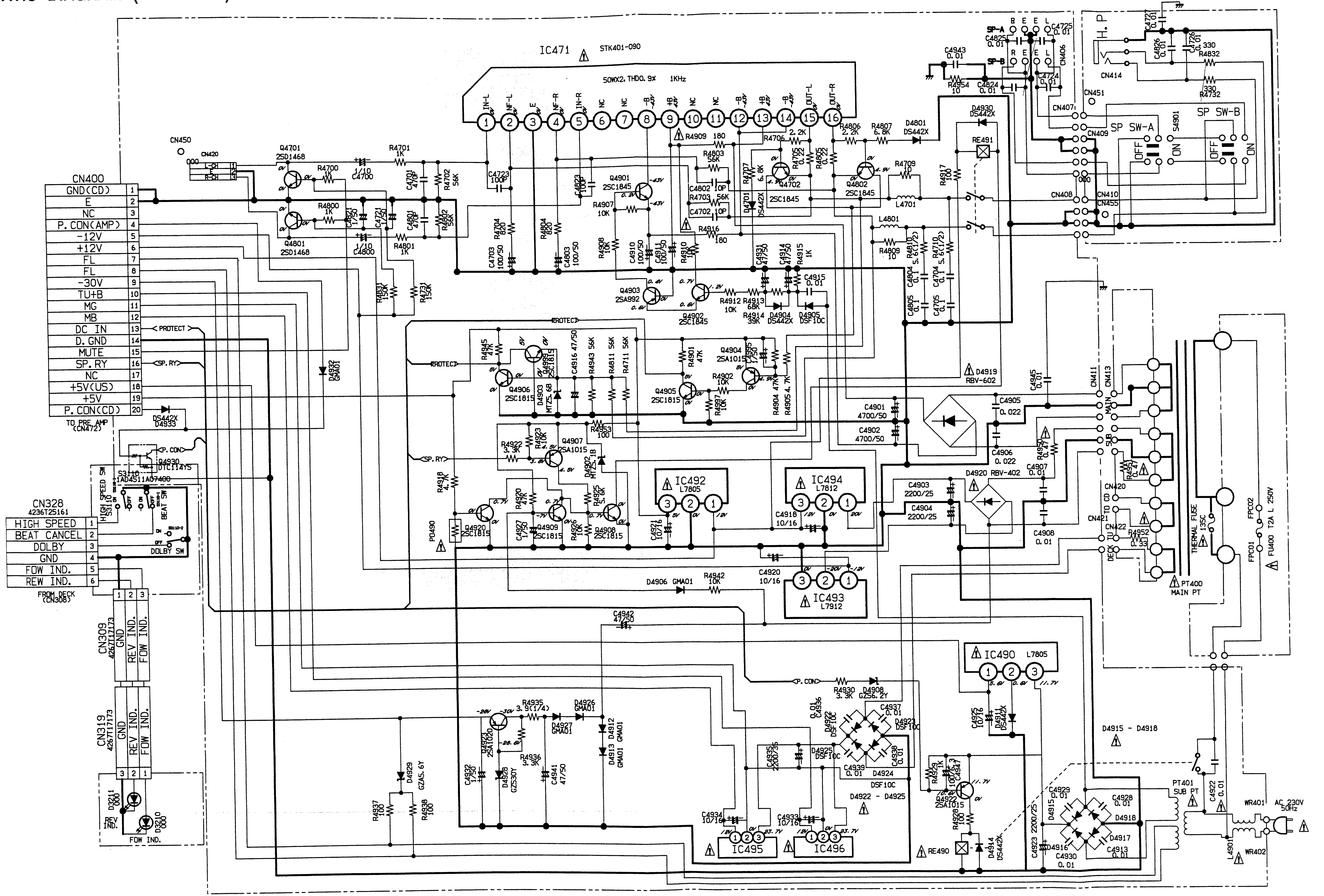
This is a basic schematic diagram.

WIRING DIAGRAM (TUNER & FRONT)



TO PRE-AMPLIFIER P.C.B (CN480)
TO PRE-AMPLIFIER P.C.B (CN477) (CN476)
TO PRE-AMPLIFIER P.C.B (CN481)
CN488
CN251
CN252
CN253 TO TUNER
CN255
CN256
CN241
CN242
CN201
CN260
IC251
IC202
IC203
IC201
LA3361
LM7001
LA1265-AUD
TU201
12K
3K
1K
300
100
VR406
VR405
VR404
VR403
VR402
VR401
1AD4B10B67181
CMKS-81X
DIP
TUN/PRESET
UP
TUNING
DOWN
VIDEO
PHONO
TUNER
CD
TAPE
BAND
MODE
SLEEP
MEMO
POWER
DIR
1AD4B10B71881
CMKS-81X
MUTE
SWITCH P.C.B
FRONT P.C.B
CMKS-81X
1AD4B10B68371
FM ANT. 75Ω
AM LOOP ANT
TUNER P.C.B

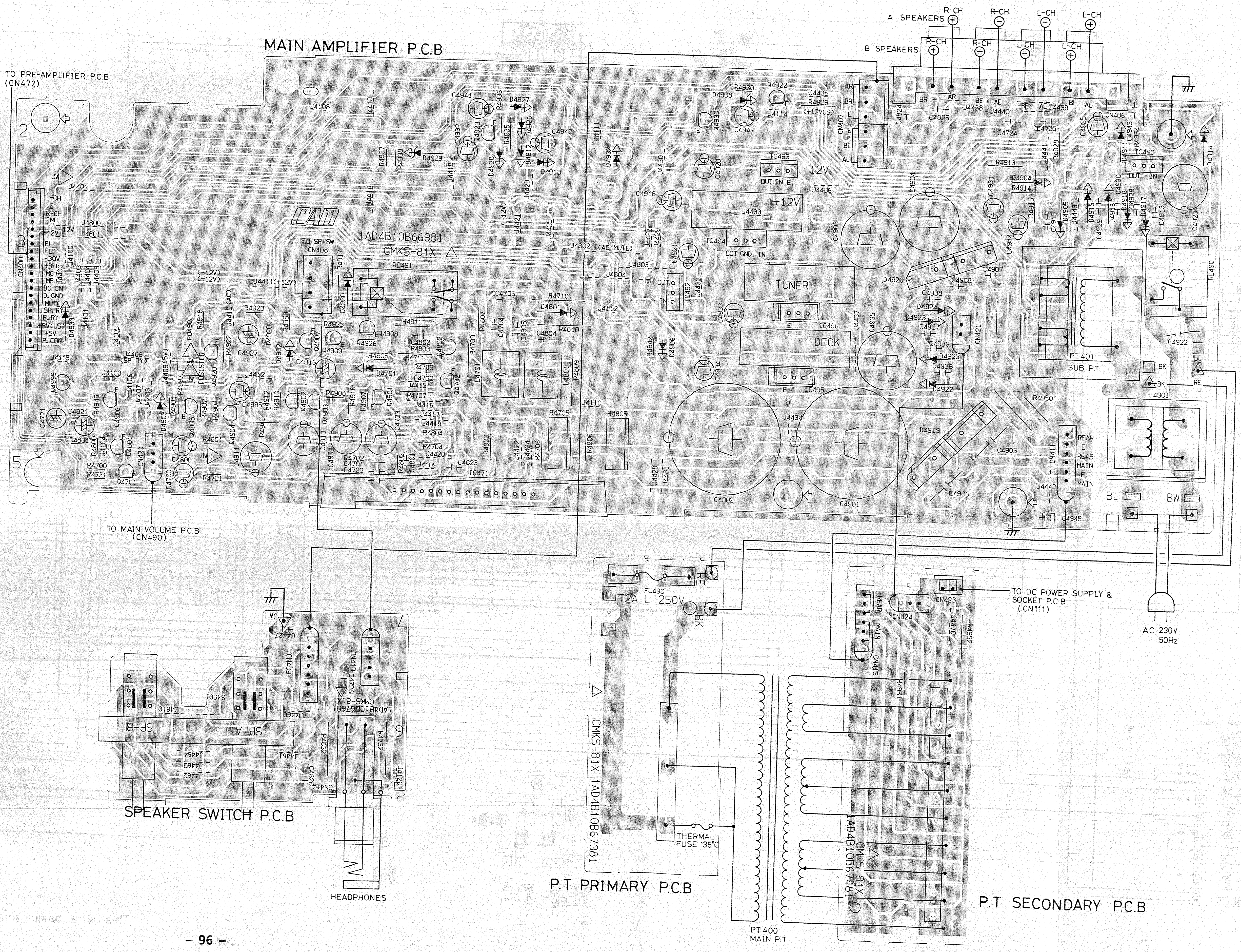
SCHEMATIC DIAGRAM (MAIN AMP)



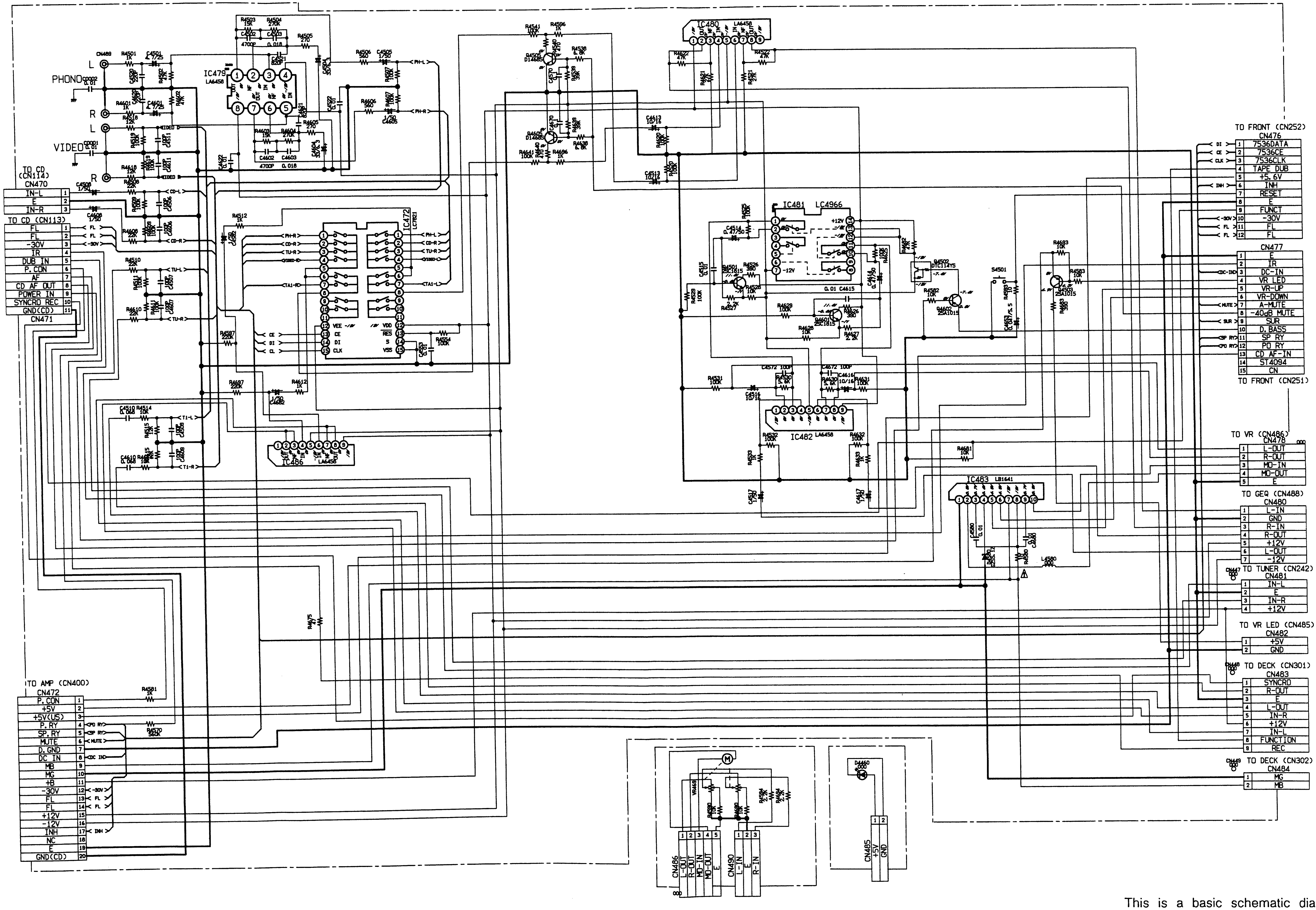
IC471
STK401-090
50WX2, THD0.9% 1KHz
IN-L
NF-L
E
NF-R
IN-R
NC
-B
+B
OUT-L
OUT-R
CN450
CN420
L-CH
E
R-CH
CN400
GND(CD)
E
NC
P.CON(AMP)
-12V
+12V
FL
FL
-30V
TU+B
MG
MB
DC IN
D.GND
MUTE
SP.RY
NC
+5V(US)
+5V
P.CON(CD)
TO PRE AMP (CN472)
PROTECT
SP.RY
P.CON
Q4701 2SD1468
Q4801 2SD1468
R4700 1K
R4800 1K
R4701 1K
R4801 1K
C4700 1/10
C4800 1/10
Q4901 2SC1845
Q4902 2SC1845
Q4903 2SA992
Q4904 2SA1015
Q4905 2SC1815
Q4906 2SC1815
Q4907 2SA1015
Q4908 2SC1815
Q4909 2SC1815
Q4920 2SC1815
Q4930 DTC114YS
Q4702 2SC1845
Q4802 2SC1845
D4801 DS442X
D4930 DS442X
RE491
L4701
L4801
D4919 RBV-602
D4920 RBV-402
C4901 4700/50
C4902 4700/50
C4903 2200/25
C4904 2200/25
IC492 L7805
IC494 L7812
IC493 L7912
IC490 L7805
IC495
IC496
RE490
D4932 GMA01
D4933 DS442X
D4906 GMA01
D4908 GZ56.2Y
D4915 - D4918
D4922 - D4925
PD490
S3110 1AD4511A07400
HIGH SPEED SW
BEAT SW
DOLBY SW
CN328 4236T25161
HIGH SPEED
BEAT CANCEL
DOLBY
GND
FOW IND.
REW IND.
FROM DECK (CN308)
CN309 4267T17173
CN319 4267T17173
GND
REV IND.
FOW IND.
D3211
D3210
REV IND.
FOW IND.
H.P
CN414
CN451
CN406
CN407
CN408
CN409
CN410
CN455
SP-A
SP-B
SP SW-A
SP SW-B
S4901
OFF
ON
CN411
CN413
MAIN
SUB
CN420
TO CD
CN421
TU
DECK
CN422
THERMAL FUSE 135C
FPC01
FPC02
FU400 T2A L 250V
PT400 MAIN PT
PT401 SUB PT
WR401
WR402
AC 230V 50Hz
L4901

This is a basic schematic diagram.

WIRING DIAGRAM (MAIN AMP)

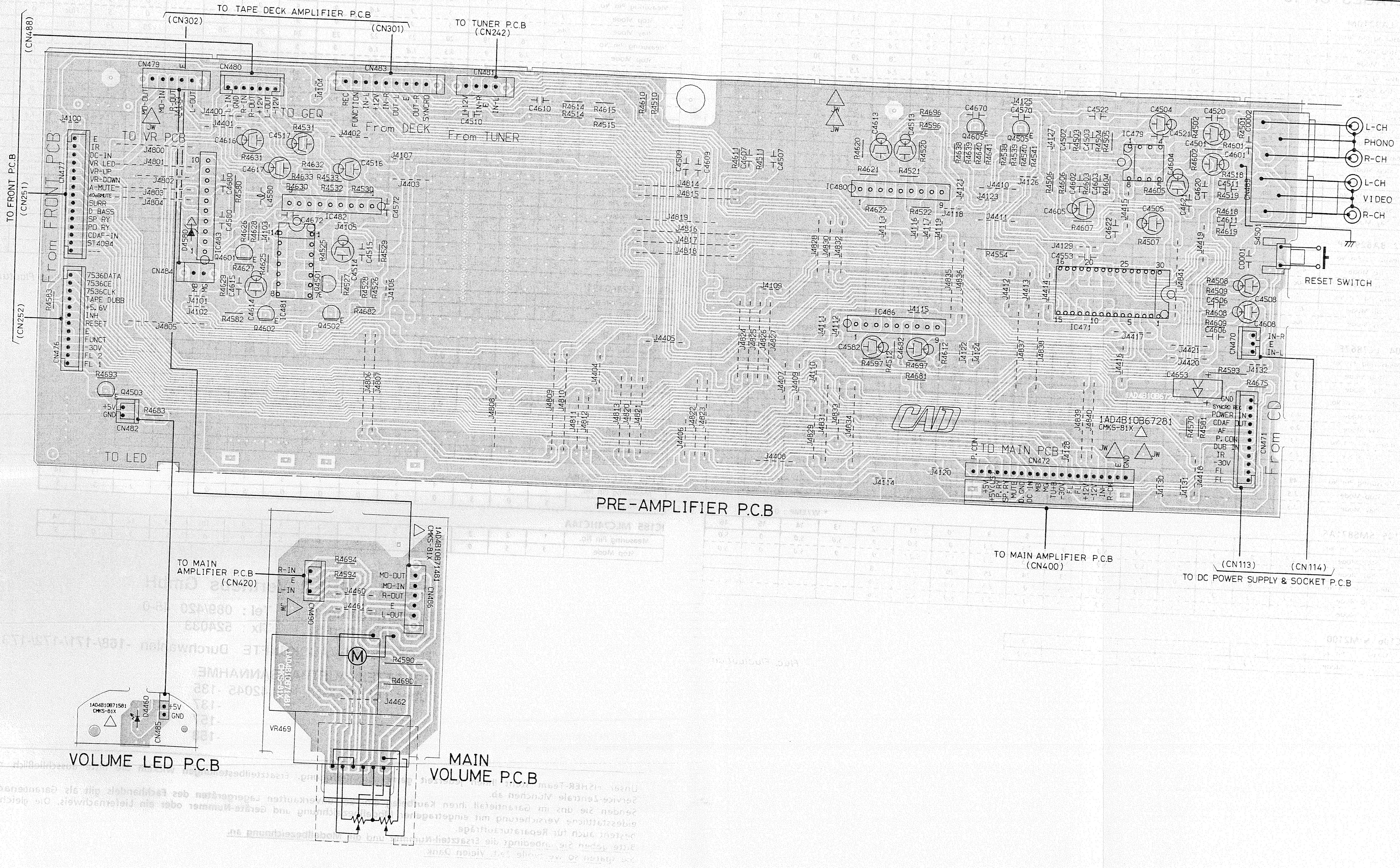

MAIN AMPLIFIER P.C.B
TO PRE-AMPLIFIER P.C.B (CN472)
TO MAIN VOLUME P.C.B (CN490)
A SPEAKERS
B SPEAKERS
R-CH
L-CH
1AD4B10B66981
CMKS-81X
TO SP SW
TUNER
DECK
+12V
-12V
PT401 SUB P.T
SPEAKER SWITCH P.C.B
SP-A
SP-B
HEADPHONES
P.T PRIMARY P.C.B
CMKS-81X 1AD4B10B67381
FU490
T2A L 250V
THERMAL FUSE 135°C
PT400 MAIN P.T
P.T SECONDARY P.C.B
CMKS-81X 1AD4B10B67481
TO DC POWER SUPPLY & SOCKET P.C.B (CN111)
AC 230V 50Hz
REAR
MAIN
BK
RE
BL
BW

SCHEMATIC DIAGRAM (PRE AMP)


PHONO
L
R
VIDEO
IC479 LA6458
IC480 LA6458
IC472 LC7821
IC481 LC4966
IC482 LA6458
IC483 LB1641
IC486 LA6458
TO CD (CN114)
CN470
1 IN-L
2 E
3 IN-R
TO CD (CN113)
1 FL
2 FL
3 -30V
4 IR
5 DUB IN
6 P.CON
7 AF
8 CD AF OUT
9 POWER IN
10 SYNCRO REC
11 GND(CD)
CN471
TO FRONT (CN252)
CN476
1 7536DATA
2 7536CE
3 7536CLK
4 TAPE DUB
5 +5.6V
6 INH
7 RESET
8 E
9 FUNCT
10 -30V
11 FL
12 FL
CN477
1 E
2 IR
3 DC-IN
4 VR LED
5 VR-UP
6 VR-DOWN
7 A-MUTE
8 -40dB MUTE
9 SUR
10 D.BASS
11 SP RY
12 PO RY
13 CD AF-IN
14 ST4094
15 CN
TO FRONT (CN251)
TO VR (CN486)
CN478
1 L-OUT
2 R-OUT
3 MO-IN
4 MO-OUT
5 E
TO GEQ (CN488)
CN480
1 L-IN
2 GND
3 R-IN
4 R-OUT
5 +12V
6 L-OUT
7 -12V
TO TUNER (CN242)
CN481
1 IN-L
2 E
3 IN-R
4 +12V
TO VR LED (CN485)
CN482
1 +5V
2 GND
TO DECK (CN301)
CN483
1 SYNCRO
2 R-OUT
3 E
4 L-OUT
5 IN-R
6 +12V
7 IN-L
8 FUNCTION
9 REC
TO DECK (CN302)
CN484
1 MG
2 MB
TO AMP (CN400)
CN472
1 P.CON
2 +5V
3 +5V(US)
4 P.RY
5 SP.RY
6 MUTE
7 D.GND
8 DC IN
9 MB
10 MG
11 +B
12 -30V
13 FL
14 FL
15 +12V
16 -12V
17 INH
18 NC
19 E
20 GND(CD)
CN486
L-OUT
R-OUT
MO-IN
MO-OUT
E
CN490
L-IN
E
R-IN
CN485
+5V
GND
S4501
L4580
D4460

This is a basic schematic diagram.

WIRING DIAGRAM (PRE AMP)


TO TAPE DECK AMPLIFIER P.C.B
(CN302)
(CN301)
TO TUNER P.C.B
(CN242)
(CN488)
TO FRONT P.C.B
(CN251)
(CN252)
CN479
CN480
CN483
CN481
MD-OUT
MD-IN
R-OUT
L-OUT
L-IN
GND
R-IN
R-OUT
+12V
-12V
TO GEQ
REC
FUNCTION
IN-L
+12V
IN-R
OUT-L
E
OUT-R
SYNCRO
TO VR PCB
From DECK
From TUNER
From FRONT PCB
CN477
J4100
E
IR
DC-IN
VR-LED
VR-UP
VR-DOWN
A-MUTE
SURR
D.BASS
SP RY
PD RY
CDAF-IN
ST4094
7536DATA
7536CE
7536CLK
TAPE DUBB
+5.6V
INH
RESET
E
FUNCT
-30V
FL 2
FL 1
CN476
CN484
IC482
IC481
IC480
IC486
IC471
IC479
R4693
Q4503
+5V
GND
CN482
R4683
TO LED
CN470
IN-R
E
IN-L
L-CH
PHONO
R-CH
L-CH
VIDEO
R-CH
S4501
RESET SWITCH
CN489
CN471
From CD
SYNCRO REC
POWER IN
CDAF OUT
AF
P.CON
DUB IN
IR
-30V
FL
FL
TO MAIN PCB
CN472
1AD4B10B67281
CMKS-81X
PRE-AMPLIFIER P.C.B
TO MAIN AMPLIFIER P.C.B
(CN400)
(CN113)
(CN114)
TO DC POWER SUPPLY & SOCKET P.C.B
TO MAIN AMPLIFIER P.C.B
(CN420)
R-IN
E
L-IN
CN490
R4694
R4594
MD-OUT
MD-IN
R-OUT
E
L-OUT
CN486
J4460
J4461
M
R4590
R4690
J4462
VR469
1AD4B10B71481
CMKS-81X
MAIN
VOLUME P.C.B
1AD4B10B71581
CMKS-81X
D4460
+5V
GND
CN485
VOLUME LED P.C.B

VOLTAGES OF IC

Unit: Volt

IC101 LA9210M

Measuring Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Stop Mode	0	0	2.5	2.5	2.5	2.4	2.5	2.5	2.5	2.4	2.6	2.6	2.5	2.5	2.5	2.5
Play Mode	0	0	2.5	2.5	2.5	2.4	2.5	2.5	2.5	2.4	2.6	2.6	2.5	2.5	2.5	2.5
Measuring Pin No.	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Stop Mode	2.5	2.5	2.5	2.5	2.6	2.6	2.5	2.5	0	2.5	2.4	2.4	2.5	2.5	2.5	0
Play Mode	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	0	2.5	2.4	2.5	Fluc	2.5	Fluc	0
Measuring Pin No.	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
Stop Mode	2.5	2.5	2.5	5.0	5.0	0	0	0	0	0	0	0	5.0	5.0	0	0
Play Mode	Fluc	2.5	2.5	5.0	0	0	0	4.2	0	0	0	0	5.0	0	0	0
Measuring Pin No.	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64
Stop Mode	4.2	0	0	0	2.6	2.4	2.4	5.0	2.6	2.6	Fluc	4.0	2.8	2.1	5.0	0
Play Mode	4.2	0	0	Fluc	2.6	2.5	2.5	5.0	2.5	2.5	2.2	4.1	2.6	2.1	0	0
Measuring Pin No.	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
Stop Mode	0	2.0	Fluc	1.6	1.3	1.2	0	1.3	1.6	5.0	0	5.0	5.0	1.6	1.6	1.6
Play Mode	0	3.3	3.7	3.0	2.2	3.5	0	2.8	1.7	4.0	0	4.0	5.0	1.7	1.7	1.7

IC102 BA6296FP

Measuring Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Stop Mode	4.2	4.2	2.5	2.5	8.0	5.0	0	0	2.5	0	4.1	0	0	8.4	0	0
Play Mode	Fluc	Fluc	Fluc	2.5	7.8	5.0	5.0	0	0	2.5	4.1	4.2	0	8.4	0	0
Measuring Pin No.	17	18	19	20	21	22	23	24	25	26	27	28				
Stop Mode	4.1	4.1	2.6	2.5	8.9	8.9	2.5	2.5	2.5	4.2	4.2	0				
Play Mode	Fluc	Fluc	0	2.5	8.9	8.9	2.5	2.5	Fluc	Fluc	Fluc	0				

IC104 LC7867E

* W/EMP : 5.0 V

Measuring Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Stop Mode	0	2.3	2.3	2.7	0	2.3	2.3	2.6	0	0	0	5.0	0	2.5	4.2	4.2
Play Mode	0	2.3	2.3	2.4	0	2.5	2.5	2.6	0	Fluc	0	0	0	2.5	4.2	0
Measuring Pin No.	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Stop Mode	0.5	1.7	0	5.0	5.0	0	0	5.0	0	0	0	0	0	5.0	1.3	1.3
Play Mode	0.6	2.0	5.0	0	5.0	0	0	5.0	0	0	0	0	0 *	5.0	1.3	1.3
Measuring Pin No.	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
Stop Mode	2.5	2.5	0	2.3	0	2.5	2.3	1.8	2.5	4.6	2.6	0	2.3	0	2.5	0
Play Mode	2.5	2.5	1.7	2.3	0	2.5	2.4	Fluc	2.5	0	2.7	0	0	0	2.5	0
Measuring Pin No.	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64
Stop Mode	2.5	0	0	0	0	5.0	5.0	0	5.0	2.3	2.0	5.0	0	0	2.5	2.5
Play Mode	2.5	0	0	0	0	5.0	5.0	0	0	2.3	2.0	5.0	0	0	2.5	2.5

IC105 SM5871AS

* W/EMP : 0 V

Measuring Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Stop Mode	2.6	0	0	2.7	5.0	5.0	0	2.5	2.3	0	5.0	0	5.0	5.0	0	5.0
Play Mode	2.6	0	0	2.7	5.0	5.0	5.0	2.5	2.3	1.7	5.0 *	0	0	5.0	0	5.0
Measuring Pin No.	17	18	19	20	21	22	23	24	25	26	27	28				
Stop Mode	5.0	2.5	0	2.5	5.0	5.0	2.5	0	2.5	5.0	5.0	2.6				
Play Mode	5.0	2.5	0	2.5	5.0	5.0	2.5	0	2.5	5.0	5.0	2.6				

IC106 NJM2100

Measuring Pin No.	1	2	3	4	5	6	7	8
Stop / Play Mode	2.5	2.5	2.5	0	2.5	2.5	2.5	5.0

Fluc: Fluctuation

VOLTAGES OF IC

IC111 CXP82432-103Q

Measuring Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Stop Mode	0	5	5	5	0	4.6	0	5	0	5	5	0	5	0	0	4.6
Play Mode	Fluc	5	5	5	0	4.6	0	5	0	5	5	0	5	Fluc	0	4.6
Measuring Pin No.	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Stop Mode	0	0.8	0	0.5	1.8	1.6	0	5	0	0	0	0	0	0	0	5
Play Mode	0	0.8	0	0.5	1.4	0.8	0	5	0	0	0	0	0	0	0	5
Measuring Pin No.	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
Stop Mode	5	5	0	0	5	5	2.3	2.7	0	5	0	5	5	5	0	0
Play Mode	5	5	0	0	5	5	2.4	2.7	0	5	0	5	5	5	0	0
Measuring Pin No.	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64
Stop Mode	0	5	5	5	5	5	5	-1.8	-29	-29	-18	-1.2	-1.5	-22	-1.4	0
Play Mode	0	5	5	5	5	5	5	Fluc	Fluc	Fluc	Fluc	Fluc	Fluc	Fluc	Fluc	Fluc
Measuring Pin No.	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
Stop Mode	-29	-32	-29	-26	-1.1	-29	-1.6	-27	-27	-27	-27	-27	-27	-27	-27	-27
Play Mode	Fluc	Fluc	Fluc	Fluc	Fluc	Fluc	Fluc	-27	-27	-27	Fluc	Fluc	Fluc	Fluc	Fluc	Fluc
Measuring Pin No.	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96
Stop Mode	-27	-27	-27	-27	-27	-27	-27	-32	5	5	0	5	0	0	4.7	5
Play Mode	Fluc	Fluc	Fluc	Fluc	Fluc	Fluc	Fluc	-32	5	5	0	5	0	0	0	5
Measuring Pin No.	97	98	99	100												
Stop Mode	5	0	0	0												
Play Mode	5	0	Fluc	4.2												

IC112 LE24C04S1

Measuring Pin No.	1	2	3	4	5	6	7	8
Stop / Play Mode	0	0	0	0	5	5	0	5

Fluc: Fluctuation

IC181 LB1648

Measuring Pin No.	1	2	3	4	5	6	7	8	9	10	11	12
Stop Mode	9	5	0.5	0.5	5	2.8	9	5	0.5	0.5	5	3

IC182 LB1648

Measuring Pin No.	1	2	3	4	5	6	7	8	9	10	11	12
Stop Mode	9	0	0	0.5	5	2.1	9	5	0.5	0	0	3

IC183 LB1648

Measuring Pin No.	1	2	3	4	5	6	7	8	9	10	11	12
Stop Mode	9	5	0.5	0	0	0	9	0	0	0.5	5	1.2

IC184 MLC74HC14A

Measuring Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Stop Mode	5	0	5	0	5	0	0	0	5	0	5	0	5	5

IC185 MLC74HC14A

Measuring Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Stop Mode	0	5	0	5	0	5	0	5	0	0	5	5	0	5

SANYO FISHER Vertriebs GmbH

Stahlgruberring 4　　Tel : 089/420 45-0
8000 München 82　　Tlx : 524033

TECHNISCHE AUSKÜNFTE / Durchwahlen -168/-171/-172/-173

ERSATZEIL-AUFTRAGSANNAHME
über TELEFAX-Nr. 42045 -135
-137
-157
-158

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Bitte geben Sie unbedingt die Ersatzteil-Nummer und die Modellbezeichnung an.
Sie sparen so wertvolle Zeit. Vielen Dank.

Feb./'94/1500 NS　Printed in Japan.